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VOCATION AND LEARNING

BY

HUGO MÜNSTERBERG
PH. D., M. D., Litt. D., LL. D.

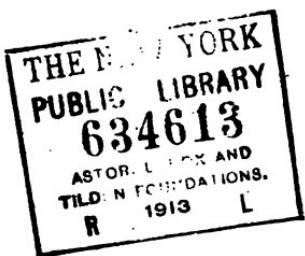
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PREFACE.

From various starting points I have approached the problem of the vocations in my previous writings. In my book "Psychology and the Teacher," I showed how education has to prepare for the later vocational life, not only by furnishing knowledge and professional training, but most of all by arousing enthusiasm and idealism. In my recent book, "American Problems," the essay on "The Choice of a Vocation," demanded a most careful study of the personal individualities. It was a protest against the haphazard selection of one's life-work.

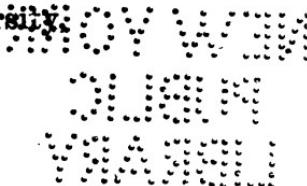
I have felt more and more strongly that the right guidance of the youth to the special life occupations is a function of the community no less important and no less difficult than the right schooling. The first step toward the fulfillment of this too long neglected duty must evidently be an analysis of the demands which are made by the various vocations. Such an inquiry cannot be helpful, if it asks only for an enumeration of the technical requirements. What seems necessary is not a superficial outside view, but an understanding of the deeper inner demands of our occupations and professions.

My intention to write such a book might not have been realized so soon, if it had not been stimulated by an educational institution. "The People's University," an organization which centers at University City, St. Louis, Mo., aims to spread the desire and the enthusiasm for learning and culture in order to encourage individual advancement. Its leaders pointed out to me how much a serious book on the demands of the vocations was needed as an introduction to their work, and they suggested that I write it to help the many thousand members of their organization. This idea coincided so fully with my plan that I assented without hesitation.

But the book, thus written at first for a narrower circle, needed only a few changes in order to be adjusted to the wider public. In this revised form I send it out into the world today, with the sincere hope that it may help toward a fuller understanding of a social problem in which perhaps all the other problems of society are rooted.

HUGO MUNSTERBERG.

Harvard University



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PART I—HAPPINESS.

I.

PLEASURE.

Most people do not think much about their aims in life and about the means to reach them. They fulfill well or badly their large or small tasks of the day; they do willingly or unwillingly what the hour demands; they try to find enjoyment and satisfaction on their way and they try to avoid pain and sorrow when they threaten; but they do not trouble themselves with asking especially whether there is one great general purpose behind it all and whether the best possible means are chosen. It is one thing to live a life and another thing to have clear thoughts about life. We do not need philosophy in order to work or play. And yet if not clearly, at least vaguely and dimly, there is probably in every mind a consciousness of the desire for happiness.

Everybody may seek happiness in his own way, and the paths to it are numberless. That which brings delight to one may be indifferent to his neighbor; one may feel his greatest happiness in

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the enjoyment of music, while the next finds the greatest music dull and tiresome; one is made happy by the fulfillment of his political ambitions and another does not care in the least for political honors; one is happy with his steam-yacht and another is still more glad that he does not need to be on the water. Yes, there seems to be nothing between heaven and earth which is fit for everybody's happiness, but certainly everybody knows that he seeks happiness. This knowledge comes most distinctly to his consciousness by the disappointment which enters into every life. No one is perfectly happy throughout, and too many feel their existence as entirely deprived of true happiness. They look with envy at the joy and abundance of their more fortunate neighbor and sharply feel the failure of their own career. Only a few seem victorious on the battlefield of humanity; most seem to be defeated, and many to be defeated ignominiously. Dissatisfaction with one's share in life appears to be almost as widespread as the desire for happiness.

But here the thought and consideration of most people are at an end. They complain but they do not make any serious effort to examine the sources of true happiness; and while they may make any effort to secure that which seems valuable at a superficial glance, they seldom think of the more effective attempt to recognize the real conditions of human happiness. This superficiality

PLEASURE

begins with the careless confusion between happiness and mere pleasure. Pleasure in the ordinary sense of the word certainly may enter as an element into our happiness, just as pain may sharply interfere with it. But after all mere pleasure is the least reliable and least essential element of perfect happiness. The life which surrounds us, especially the city life, seems indeed controlled by a wild chase for the sources of pleasure, for the outer things which flatter our senses, which bring comfort and luxury. And as these things are purchasable, the longing for wealth penetrates our entire social surroundings. Too few are aware that there is a great misunderstanding at the bottom of such wishes and hopes and desires. Pleasure is treated as if it could be heaped up like gold. Any insight into the laws of the human mind shows the opposite. To live in luxury is in itself in no way more pleasurable than to live in modest circumstances. The poor man labors under the illusion that the rich has more pleasure from his expenditures, because he thinks of the pleasure which he himself would get, if he were in his place. Yet the pleasure he dreams of would only accompany the change. As soon as a new adjustment had set in, the luxury would at once be an indifferent routine with the same fluctuations of pleasure and displeasure which occurred on the lower level. It is by far more a matter of temperament than of reason whether a man looks with envious dissatisfaction at the goods in the hands of others or

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whether he wants only that which he has and finds satisfaction in his share of life's pleasures.

The level of life may be high or low—we shall always have the same fluctuations of feeling with the upward or downward movements. A mere raising of the level cannot change this fundamental trait of the human mind. Capacity For Pleasure The beggar enjoys the gain of a few pennies as much as the banker the rise of his stocks. The child in the tenement district has as much pleasure from the street dance to the music of the hurdy-gurdy as the fashionable child from the dance in the ball room. The capacity of the mind for pleasure is a very limited one, and it would be an absurdity to enter into the struggle of life if nothing but such mere pleasures were the goal. It is with the individual as with the whole race. Mankind has stepped from one discovery to another, has made life richer and fuller, but we have not the slightest reason to believe that the amount of pleasure has become greater. The savages have as much pleasure as the civilized man, and after all, the beasts in the jungle have the pleasures of their senses no less than men. In the same way the individual cannot greatly change his capacity for pleasure, and very little even his opportunity for it. To the hungry the taste of bread is delicious; to the spoiled tongue the taste of terrapin no longer gives pleasure.

But there is a still more important reason for the

PLEASURE

inefficiency of mere pleasure to secure true happiness. The longing for the pleasure leaves us still dissatisfied, and as soon as the pleasure removes the longing, the desire itself is extinguished. A great thinker has therefore said that the life for pleasure is hopeless because it is a pendulum-like swaying between unhappiness and tedium. As long as we do not have the pleasure we feel the torture of dissatisfaction, and as soon as the pleasure has come there is no longer any desire, and therefore ennui and indifference. And here again we touch a deep trait of the mind. What we really mean by happiness is not the mere fulfillment of a desire by which the desire disappears. Happiness means satisfaction of a longing, but of a longing which goes on and which becomes reenforced by the fulfillment. The happy mind is not a mind in which every desire has gone to sleep, but a mind in which new and ever new longings are alive and are felt as active in the midst of their complete fulfillment. Happiness is therefore endlessly larger than the mere enjoyment of pleasure.

All this is no moral preaching against the emptiness and shallowness and shortness of the pleasure. It is simply an insight into the nature of the mind. And there would be endlessly more true satisfaction and less unhappiness in the world if the least efficient agencies of happiness, the external pleasures, were not falsely accepted as the standards of desire.

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The perspective in the opposite direction is opened when we turn to the desire for ideal goods. The longing for truth, for beauty, for friendship and love, for justice and morality, for progress and religion, is also desire of the mind and seeks its satisfaction. But

The Desire For Ideal Goods the satisfaction does not eliminate the desire; it intensifies it and enriches it.

Every new insight opens new problems, every step forward in the path of progress encourages new hopes, every moral victory enlarges the moral demands. The ideal goods alone are inexhaustible and the satisfaction which they furnish does not counteract the energies of the mind but heightens them.

II.

SERVICE.

There are not a few who think that to devote one's self to ideal goods is only another kind of pleasure. One, they say, has more pleasure from sweet wine and another more pleasure

Ideal from the study of mathematics, or
Satisfac- from a fight for social reform, or from
tions Bring the reading of a tragedy. But that is
Happiness a very trivial view, and the difference
is not at all merely one of words. Let us think of the extreme case. A hero or a martyr who sacrifices his life for a good cause cannot perform the noble act unless he prefers it to everything else. He likes his suffering and his death better than the comfortable life under immoral conditions. He likes it better, and that means he has a greater satisfaction from it. But is this greater satisfaction really a pleasure? Certainly not. The satisfaction in a pleasure always involves that a man prefer a certain state of himself, a certain agreeable happening in himself. But he who dies for the glorious cause does not prefer his own state, does not like his own death. That which he prefers is the realization of an ideal, a something

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which lies entirely outside of him and is the common cause of humanity. We have no right whatever to say that everything which we prefer and which satisfies us is therefore a pleasure of ours. Of all the goals of our will the pleasures are only a small part of the possible sources of satisfaction.

On the other hand, there is no need of thinking of the extremes only, of heroism or of martyrdom. If in our daily life we prefer the just and the moral, the beautiful and the true, perhaps there are no great struggles involved, but in every act we ought to be sure that we seek something which has value in itself and which is not simply a pleasant sensation of ours. This does not exclude the fact that we may also have pleasure from our ideal choices. Certainly a bad conscience is a very unpleasurable sensation, but no one knows the meaning of morality who avoids the dastardly crime only because he dislikes that unpleasant sensation in his chest which bad conscience may bring him. And no one has really reached the level of true religion if his belief is nothing but an agreeable, pleasant emotion.

Yes, we cheapen our ideal satisfactions even if we connect them with the pleasures which the future may bring. If we seek the truth, we may ex-

pect certain advantages from knowing
Choice of Ideal Goods more than others, but he who really loves truth values it for its own sake and not merely for the pleasure which it may bring him in practical life. And he who

SERVICE

performs the moral deed ought never to do the good act simply because he hopes to have the pleasure of being praised by others and getting some reward which is pleasant. He should prefer the good because he would feel unworthy if he were not to serve it. Surely these ideal goods express their highest meaning only if they are considered without reference to the pleasure which they may carry with them. We want and demand them, just as much as we want our pleasures, and the fulfillment of this demand gives us just as real and full a satisfaction as any pleasure can supply.

But this satisfaction is in every way more fit to contribute to real happiness than the satisfaction which pleasures can bring. Here we have just that which guarantees the steadiness and the inexhaustible supply of satisfaction. The fulfillment does not destroy the desire, but enlarges it. It keeps the will active and does not simply work like an opiate on the volition. It leads endlessly further, and every realization opens new tasks. There is therefore no last goal possible at which the longing disappears, but the progress itself is a joy, the movement towards the goal is a delight, the will that serves ideal goods becomes therefore its own purpose.

This is the reason why the longing for ideal goods can bring us happiness in a much more reliable way than the longing for pleasure. It is much more independent of the outer chances; it finds its deepest conditions in the man's own will and heart. What-

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ever the fates may decree, the moral will stands above the unlucky chances and the ideal aim is independent of the haphazard movements of our surroundings. To serve in loyalty to the ideals of life means to secure the best share in true human happiness.

Everybody cannot do everything. This happy life of service demands division of labor. Certain satisfactions, to be sure, we all can share. We all may enjoy the happiness of good conscience Meaning of and holy belief, of the beauty of nature The Voca- and of the harmony of family life; we tional Life all may enjoy the happiness of freedom and progress and share the beauty of art and the truth of knowledge. Yet if the work of mankind is to be performed, if the realization of such a world of progress and truth and freedom and beauty is to be attained, the fullest energies of each one must be concentrated on some one point. The full happiness of serving the ideals presupposes serving them well, and that demands that all powers, all energies and abilities, all emotions and all wisdom of the individual be focused on one task instead of being scattered in all directions. This focusing of service on an ideal end is our vocational life, and no adult person lives in the community without some vocational end. As long as a human personality is being prepared for such an end, we speak of the period of youth, and youth ends at whatever year of age the vocational work may be begun.

SERVICE

The vocational life is thus the real center of all endeavors toward happiness which man can know. It is service to ideal goods and therefore an abundant source of satisfaction, but superior to all other strivings because it is best adjusted, best prepared, best focused. The vocational life of man—and it makes no difference whether it is that of the lowest farm hand or miner or that of the judges of the supreme court—ought to be the richest and amplest source of happiness. And yet who can overlook the fact that in our present social organization it falls far short of such a demand?

III.

THE MEANING OF VOCATION.

Why does the vocational life in our time fulfill so poorly its task of being the center of happiness? Why is it to so very many nothing but a heavy burden under which they suffer? Why do they put it on the debit side of their account book of happiness while the pleasures are booked as credits?

There are many reasons, and we shall discuss them all later. But at once we ought to recognize the decisive one: it is the wrong perspective of

A New Viewpoint Towards Life which we have spoken. The mere pleasure is considered as the whole of happiness and the life occupation is measured by the amount of pleasure which it provides. As soon as we see that the satisfaction in ideal ends is a deeper source of happiness than any satisfaction in our personal states, our life work takes entirely new meaning and form. We no longer consider it only under the point of view of how far it has pleasing effects and how far

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it brings discomfort. Our attention is focused on the more important question of how far we can hope to fulfill through it an ideal end in which we believe and how far it means service in which our will creates new values and brings us the happiness of ideal fulfillment.

This different point of view exists for every occupation in the world. Ultimately there is no vocation in our community which, looked on merely from the point of view of the personal pleasure state, is not to a certain degree a burden and a drudgery. But it can be said with still more certainty that there is no occupation which, seen from that higher point of view, may not be a source of inspiration and happiness. Certainly we want the comfort of our senses and we do not want our fatigue and our hunger, but we also want mankind to move and we do not want injustice and error, ugliness and sin, misery and crime. To fulfill that common demand which we all share is no less a real satisfaction than to fulfill that fugitive, private one. The organization of society demands that we yoke together our private desires and our ideal wants. We must have fees and honorariums for our work to satisfy our hunger; and yet we have destroyed the meaning of our work if we look at it only or essentially from the point of view of the bread and butter which it promises.

There are hundreds of thousands who stand before their pupils in the classroom as teachers. How

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shallow and unsatisfactory is their life, if it is considered merely from the trivial stand-point of comfort and pleasure! Is it not a humiliating experience for every one of those grownup men and women to be there simply at the service of the little children of whom too many respond with naughtiness and laziness? Is it not a fatiguing work which keeps the teachers in the stuffy schoolroom all day and over the written tests late at night when they might enjoy their young life? And how miserable the little pay they earn! What a small share of the luxuries of life is theirs! Yet nobody is a real teacher who has such a cheap and unworthy view of the teacher's task! The vocation of the teacher does not consist in doing certain prescribed written work in order to get some money which is needed to pay the board bill, but in living to the most ideal duty, to the upbuilding of the country's youth. There is no nobler and more glorious profession than that of the school worker, to whom every young life is a sacred gift entrusted to his informing care, and who lovingly devotes his proudest energies to the ideal task of planting the culture of our time in those young minds and hearts. Only he who feels in his deepest soul this wonderful desire for lifting the young minds up to higher and higher levels of life can really be called a teacher. But he who really feels it, must get through the fulfillment of this task an inexhaustible happiness, compared with which it is a very

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unimportant matter whether the salary buys bread only, or cake and candy as well.

What a drudgery is the life of the physician—to be ready day and night to do the most menial service for strangers with repugnant diseases. He has to do such ugly, dirty work that no man of refinement would even consider the richest payment a sufficient equivalent for a supply of pleasure to counterbalance the displeasure of his low and disagreeable labors. How absolutely different is the situation as the true physician thinks of his task! There is nothing menial and low, nothing ugly and repugnant, and many a rich man is doing the work with enthusiasm and would be glad to pay to be allowed to do it, if there were need for it. The labor is only the means to satisfy his greater longing to help in the service of mankind, to cure disease, to fight the bodily miseries of the world by the acute thought of medical knowledge, and this is a longing much higher and more important than that for comfort. No fatigue and no disturbance counts, if this higher desire can be fulfilled. It is an abundant source of pure happiness. It is no different with the lawyer or with the scholar, with the politician and the social reformer, the artist and the clergyman. Of all it is true that their daily work is made up of thousands of little things which taken in themselves alone may be uncomfortable and troublesome, may bring fatigue and disturbance, in short, are drudgery. And yet if the vocation has

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really penetrated their minds, they do not think of those little scattered incidents, but they grasp the whole as a whole and would not exchange the blessing of their life work even for the richest supply of mere pleasures. What is theirs is endlessly more to them than pleasure: the fulfillment of the ideal desire to serve justice and truth, to work for progress and freedom, to create beauty and to spread religious belief.

But all this is in no way different in the so called commercial pursuits. The difference of the standpoint is, to be sure, more easily recognized in the case of the teacher or the physician or the lawyer or the clergyman. In these cases it is so evident that to earn money and by it to purchase pleasures does not express the deepest meaning of the vocation; in industry and commerce, in farming and mining and any laborer's work, the difference between the two standpoints is perhaps less easily grasped. It seems here that the market price of the labor is the last goal and that the selfish gain and the pleasure which comes from it alone gives meaning to the whole manifoldness of economic pursuits.

Yet the twofold standpoint, the low and the high, ought to be distinguished here no less than in the professional callings. Is it necessary to point out that the great American business man Commercial certainly does not work merely for Pursuits money's sake? As soon as he has earned the money, we see how he gives it away with lavish hands. And many of those who

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work with indefatigable energy, not allowing themselves the pleasurable comfort of a leisure hour, serve the commercial achievement without any thought of personal pleasure from the financial gain. That which moves them is not the possession of money but the thought of the success in their ideal life work. The money is only the scale and standard of their success, and it is sought because it indicates that the true task is successfully performed.

This task is economic progress and development. This has given meaning and strength to the glorious unfolding of the country's civilization, this moved the pioneers of the land, this made the triumphs of technique possible, this opened the country and lifted the treasures of the earth, this cultivated the wilderness and subjected the powers of nature to the will of man. That the smoke of new chimneys tells of human industry, that two railway tracks are laid where there was only one, that bridges are built and metals mined, that cities are founded and the millions clothed and fed in order to serve the tasks of the community—all this is truly an ideal purpose no less than teaching and healing and preaching. There is no laborer in a mill, no salesman in a store, no newspaper boy on the street who cannot and ought not to feel that he in a little wheel in the gigantic mechanism, a necessary part for the whole.

The ideal fulfillment of the economic work of the nation ought to be the inspiration for everyone who

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does a useful service, even in the humblest position. It may be no pleasure to hammer or to file from morning to night, to break out the coal and to plow the field. And yet how absolutely different, if it is compared with the labor of the criminals in the old English prisons, who simply had to carry iron balls from one corner of the prison court to the other, to heap them up and then to carry them back. That was punishment; that was cruel torture; and it would be no less torture, if anyone were well paid for doing such useless work. It would be work which does not serve an ideal end, meaningless and fruitless, unworthy of any mind which aims to be devoted to the progress of mankind. The toiler's attention may be absorbed by the unpleasant drudgery of his labor or by the pleasant gain at the week's end, but in his deepest mind he ought never to forget that he is helping along that wonderful work of economic achievement which gives worthy meaning to his industrious days.

Yet it is shortsighted if we overlook that all this is no less true and decisive with the occupation of man and woman, where it has not the technical form of a special vocation. The mother who devotes every thought and feeling to the care of her children, the wife who creates for the family a home of warmth and love and honesty and endeavor, the girl who penetrates the neighborhood with her sympathies, live no less to an ideal task which must not be measured by pleasure or displeasure. There is no person who is superfluous. Paths of

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ideal achievement are open before everyone, poor or rich, well versed in high studies or trained by humble education, in the metropolis and on the farm, boy or girl. And whoever feels the need of the ideal fulfillment will gain enduring happiness in his vocation, whether he be the director of the company or the office boy, whether she be a college president or a kitchen girl.

IV.

THE CHOICE OF VOCATION.

We have pointed to the gravest error by which vocational life loses its chance to be an inexhaustible source of happiness. It is a wrong perspective which shows the life work merely as a means for the gratification of selfish desires instead of showing it as the satisfaction of an ideal demand.

Seen rightly, every vocation is the fulfillment of an ideal desire in us, bringing with it a more complete and more perfect and more lasting good for our heart and mind than any pleasure

The Vocational Call and comfort. But very near to this fundamental error stands another grave mistake: the carelessness, yes, the recklessness, with which the voca-

tions are chosen. If a vocation is to be the deepest source of lasting happiness, everything must depend first on the fact that it fulfills a demand which is really felt by the particular man or woman and secondly, that their abilities and powers make them fit to help toward the realization. Thus there is no more momentous act in the individual's development than his choice of a life work. No decision ought to be taken with greater care and with more earnest consideration of all the personal factors involved. Does your interest really lie in this direction? Do you feel from the depths of your

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heart the need which is to be satisfied by your toiling? Everybody knows that if a man is a lukewarm believer, his place is not in the pulpit of the church. He must feel in his inmost mind the longing for the word of God to be carried to human minds, and only if he feels that need as a personal experience will his work in the congregation be lasting happiness to him. And yet it is no different with the teacher and the lawyer and the physician, with the artist and reformer and politician. If they do not feel the belief deep rooted in their own hearts, their life work will be shallow and empty. But exactly the same holds in every more practical sphere of life. If you do not love the soil, if you do not feel the wonderful mystery of helping the harvest grow and of transforming the treasures of the fertile ground into bread for the hungry, if you do not feel it as a personal need that this nature which God has given to man for labor should become a helper to struggling mankind, then you are not worthy of being a farmer. Then it is not your own will which can be satisfied by your work and the real blessing of the vocation is lost to you.

Moreover you need not only to examine your tastes and inclinations, your interests and sympathies, but your gifts and abilities. No one, even if **Individual Aptitudes** he loves music, would choose the vocation of the composer unless nature has provided him with an inborn musical talent and with the wonderful gift which is given to few. No one will dare to select

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the calling of the mathematician who has not been favored by nature with the characteristic mathematical intellect. And yet the same demand for a natural preparedness repeats itself on every vocational path.

Real enjoyment and success demand a subtle adjustment between the personal gifts and the life occupation. And perhaps the more hidden the connection, the more earnest ought to be the desire to examine the mental and physical equipment, the tendencies of temperament and of imagination, the natural powers of attention and intellect, the skill and the endurance of the organism; in short, every trait which might contribute to success or failure of the intended work. Daily experience everywhere shows us the discouraging fact that almost the opposite prevails.

It is true, there is one other decision in life which is no less consequential, no less responsible for happiness or failure, no less important for the welfare of society. It is the selection of husband or wife, and here we see the same unconsidered, almost reckless superficiality and haste. How many homes might have been saved, how often divorce might have been avoided, how often children might have been brought up in a more harmonious atmosphere, how often wastefulness or misery, drunkenness and crime might have been avoided if those two who joined hands for married life had ever earnestly asked themselves whether they belonged together and whether they were made for

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each other. Yet behind that reckless choice stood, at least often, the mysterious impulse of love, and society cannot afford to give up the belief that the instinctive desire of love between man and woman is the safest guide toward a lifelong union.

But how superficial and haphazard are the motives which direct the choice of a vocation! Without any acquaintance with the deeper structure of a calling the boy or girl is attracted by some chance features and surface appearances. More often it is not even any trait of the calling itself, but only a chance opportunity offered by an advertisement or by the advice of a friend. Often mere laziness decides the selection in order to avoid every effort to survey the opportunities. A thoughtless imitation of one's neighbor, a cheap desire to do what the fashion suggests, all repeat themselves on the lowest as well as the highest ground. They decide whether the college boy shall go into law or medicine, just as they decide whether the boy from the grammar school shall go into the grocery business or into real estate. The average girl puts more serious thought on the selection of her clothes than on the selection of her life work.

It is as Carlyle said: "Blessed is he who has found his work; let him ask no other blessedness. He has a work, a life purpose; he has found it and will follow it! How, as a free flowing channel dug and torn by noble force through sour mud swamp of one's existence, like an ever deepening river there, it runs and flows—draining off the sour,

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festered water gradually from the root of the remotest grass blade; making, instead of pestilential swamp, a green, fruitful meadow with its clear-flowing stream. How blessed for the Right vs. meadow itself, be the stream and its Wrong value great or small." But no one has Choices found this happy life work who does not feel that his spontaneous energies and natural gifts are tending in this direction. When every hour suggests the conflict between the vocational duty and the natural interest, no material earning can hide the hollowness of such an existence. This is the reason why so many boys and girls overindulge in the time wasting outside pleasures, in sport and card playing, in drink and cheap entertainments. They seek stimulation and excitement outside their regular work because they do not find it inside, and they cannot find it inside if their vocational work is not harmonious with their natural turn of mind.

There are many who believe that the technical development of our age is responsible for this lack of satisfaction in the daily work. In older times, All Work they say, the crafts and trades relied on the personal skill and cleverness of Can Be the individual; in these times of the Interesting factories the individual energy and imagination is made superfluous, the machine is doing the work, and the task of the laborer is dull and uninteresting, a mere repetition of a few uniform movements. Yet even this is an il-

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lusion. It is the view of the outsider which at least exaggerates grossly one aspect of our manufactures. Seen from without by a mind which is not interested in a particular line of activity, any work can appear monotonous. He alone who is attuned to the spirit of the work sees the unlimited manifoldness which allows new thought at every point. Our naturalistic scholars like to laugh about the investigators in humanistic fields who perhaps devote a lifetime to the study of some prepositions in the Greek language; and in the same way the humanists think it incredible that a scholarly scientist can find it interesting to spend his life in studying the legs of certain beetles. The instinctive interest of those students of nature does not see the inner richness in the small problems of language. On the other hand, the inborn gifts of the humanist are not stimulated by the problems of zoology, which may give inexhaustible pleasure even in the smallest field to the mind with naturalistic training. As soon as we stand with true participation of the mind in the midst of any situation it is full of possibilities, even of excitement. There is no technical work which cannot be done well or badly, intelligently or stupidly, and above all there is none which does not allow improvement and thus which does not give chances for suggestive thought. Everything depends only upon finding the right kind of work for the right personality.

Of course the blundering is no more excusable, but rather less so, if not the girls and boys, but the

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parents are responsible. School life and home life have given plenty of chances to watch the natural inclinations of the young soul; and yet without any regard for them, parents too often push their children in any direction where the opportunities for quick returns seem favorable. This parental care ought not to be confined to a loving interest in the particular tendencies of the young mind, but it ought to expand into an intelligent survey covering the whole field of possible occupation for the son or daughter. It is indeed a great step forward that the community at various places has become conscious of this duty of guidance, where the intelligence and ability of the parents and of the children seem insufficient. In most recent years we have become more fully aware that this transition from school to vocational life is the most important step, a step which needs no less help than the period of instruction. This insight has found its clearest expression in the socalled vocation bureaus, the first of which in this country has been opened in Boston. The head of it is to work as counselor to all those boys and girls who leave the primary or secondary school, and seek advice as to the best choice of a life work. By a long series of inquiries the bureau tries to discover the capacities and inclinations of the boys and girls, tries to test their powers, their intellect and their emotions, and brings before them a reliable sketch of the possi-

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bilities which may be open to them. To a certain degree, even the school life may include such a task in its programme, and as most schools demand anyhow a certain selection of courses, the teacher can hardly miss this splendid opportunity to direct the attention toward an intelligent and well adapted choice of vocation.

When we spoke of the confusion between mere pleasure and true satisfaction in a man's life work, we insisted that it was caused by the lack of perspective; the vocation was too often seen at a wrong angle because it was looked at from too low a standpoint. Is not the grave mistake of a careless and thoughtless choice of the vocation again a kind of wrong perspective? The occupation is seen from too narrow a point of view. Only where the vocation is seen in all its relations to the person's trends and possibilities, can lasting happiness from the life occupation be expected.

V.

THE PREPARATION FOR A VOCATION.

To be interested in one's occupation is not sufficient to secure that lasting happiness which the life work ought to bring. Work is work and wants to be performed. A boy may have the natural gift for a calling, but he certainly is not born with the knowledge and training which is needed to prepare him well for his labor, and when the law of the survival of the fittest weeds out the unsuccessful apprentices, lack of assiduous preparation and schooling may hinder him no less than lack of interest. This also repeats itself on every level of human occupation. Our best physicians have gone from the high school to one of the large colleges, and with the bachelor's degree they have entered the medical school of a large university. After passing their examinations at the end of a four years' course they have spent two or three years in special studies abroad and as assistants in the hospitals under the guidance of leading specialists before they ventured to offer their services to their own patients. By their side how unprepared appears the doctor who has stepped from the high school straight into a little medical school without any broad, naturalistic education in the college years, has had a three years' course with

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second-rate teachers and at once turned to his practice when he has hardly reached his medical degree. The patients will have to suffer, but he will suffer no less, not only through his lack of success, but more from his feeling of inefficiency. Wherever a difficult case comes to his notice he will feel that his diagnosis is unfounded. He lacks the thoroughness and the training which gives to his blessed calling its real value.

We hear so often the complaint that our schools have this or that defect; the classes are too large, the methods are not well adapted, the means are insufficient, and so on. But wherever Preparation the examination of the evils goes to the of the bottom, it usually becomes evident that Teacher the real trouble is with the insufficient preparation of the teacher. There are too many who think that they can be efficient teachers if they merely fulfill the minimum requirements of the examinations. The lack of supply of well prepared teachers continually forces the school boards to accept poorly prepared ones. If a really satisfactory situation, comparable, for instance, to that of Germany, were to be reached, nobody would teach in a high school who had not come to the level of scholarship which is represented by the doctor's degree in our large universities. Still more disproportionate in an abundance of cases is the preparation of the primary school teacher. There is no real joy in teaching this morning what has been crammed last night, instead of drawing

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from a deep well of knowledge.

In all fields the community is making efforts to raise higher and higher the level of the preparatory institutions. The technical schools, which until a short time ago were insufficient for the **Opportunities for Training** mastery of the highest problems of engineering, have been wonderfully developed in recent years. The agricultural colleges and higher commercial schools have been brought to a greater efficiency, the professional schools have been strengthened, the institutions for general education, from the kindergarten to the college, have been developed systematically; and yet the whole country still labors under the difficulty that too many boys and girls and men and women are insufficiently prepared for the task in hand. A thousand byways have been successfully opened—evening schools and vocation schools, training schools and correspondence schools—and yet, seen from the highest point of view, it only looks like a promising beginning; endlessly much still remains to be done.

Moreover, the establishment of the institutions offers merely the opportunity. Everything depends upon the eagerness with which the offering is received. No doubt there is a deepseated longing in the American youth to strive forward and not to be satisfied with that which has been attained. The true spirit of Americanism implants in every mind the desire for greater efficiency and higher success. But this desire has to fight against odds.

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It is inhibited and suppressed by strong factors of public life which encourage superficiality and triviality, cheap pleasures and undisciplined thinking. The striving individual has to struggle against that high tide of cheap opinion with which the gossip of the newspapers overflows the masses, of vulgar vaudeville mood which prevails within the music halls and without, and above all against that vulgar byproduct of political democracy, the illusory belief that everybody is fit for everything.

It is indeed the glory of our democracy that everybody may strive for the highest, but this has too often encouraged the dangerous fancy that good will is sufficient for achievement in **Necessity of Efficiency** every place. Such an illusion was still halfway possible when the chief task of the nation was yet pioneer work, when the natural wealth seemed inexhaustible and the competition was small. But those days have passed and the conditions of life have changed; everywhere the expert who knows and who is prepared is truly the master. We have no longer any confidence in the happy-go-lucky methods, we no longer trust the educational technique to a citizen school board, but hand it over to an expert superintendent; we ask the expert's judgment daily in wider and wider fields. But this new belief in expert knowledge as against mere common sense, in technical preparedness as against mere smartness, in thoroughness as against dash; this new belief upon which the true development

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of this wonderful country must depend has not yet sufficiently penetrated the daily vocational work.

But even where the desire for fuller preparation or for the preparation for higher aims is victorious, there is by far too much haphazard selection and superficial approach. Studies are taken up which are merely on the surface related to the personal task, and studies which really belong at the root of the work are too often neglected. Instead of systematically building up a solid structure on which the new knowledge can rest firmly, we see an inconsiderate piling up of disconnected information and a poorly adjusted training which often hinders as much as it helps. Here, too, after all we might say, it is lack of perspective.

To prepare well for a life work that it may lead on to richer and richer achievement, whether the domestic life work at the hearth of the home or public achievement on the forum of the nation, what is needed is seeing the things in their true proportions. No bit of knowledge ought to be approached without seeing where it belongs in the world of human scholarship and science, no new technique ought to be achieved without seeing where it has its place in the system of human activities, no occupation ought to be carried out without grasping clearly all that is involved in it and all that is needed for its various branches and for its ideal development. No one can reach this by mere instinct; guidance

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is needed. But it is clear if this demand can be fulfilled, if all which is helpful toward a vocation is understood in its relation to the whole system of human life and endeavors, of human learning and activity, then even those other two demands which we recognized before are involved and fulfilled. He who really sees the essentials of a vocation against the background of the whole of human life and human civilization must necessarily get better and deeper insight into his personal fitness and into the factors which ought to lead him in the selection of a life career, and on the other hand he must gain that fuller point of view seen from which the vocation is not merely a source of personal pleasure, but the satisfaction of an ideal demand. Hence such an insight into the essentials of a vocation ultimately means the most rational effort to transform the life work into a fountain of happiness.

VI.

KNOWLEDGE AND TRAINING.

To sum up, the pleasures and enjoyments from without are merely an accidental source of happiness. They are unreliable, fugitive, self-destructive and in a certain sense illusory. The satisfactions which are secured from within by the will for ideal goods bring lasting, reliable self-reinforcing happiness. Foremost among these

The True Vision of Life sources of true happiness is the vocational life, the permanent occupation of man or woman. Yet these sources are too frequently dried up. This which might be the deepest and most beautiful value of life is too often a burden and the real enjoyments are sought outside of it. We recognize that this is the result of a wrong and insufficient vision. The vocation is not seen in its real setting, is not understood sufficiently in its meaning and in its true bearing. Moreover, the choice of a life work is not sufficiently adjusted to the personal powers and interests and conditions, and most of all the vocation is not really mastered, on account of an incomplete and haphazard prepara-

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tion. All this cannot be changed and the blessing of vocational life cannot be brought to fullest power for the nation until a much deeper insight and a truer perspective of vocational activity is brought to everybody's mind. What is needed is a clear understanding of all the relations in which a vocation stands to life and to the resources which are essential for it and to the energies which secure successful achievement. It is the aim of this little book to give help and guidance on the difficult path to such a noble goal.

Hence our purpose is not simply to give practical advice and to tell the shoemaker or the lawmaker what may be useful for immediate success in his vocation, but to look at those problems from the highest point of view in order that every single thing may be seen in the totality of its connections. We might almost say that our aim is the philosophy of vocation, because it is the function of philosophy to understand the single experience in the light of the whole. The more we can grasp the special task as resulting from general principles, the more we shall liberate it from accidents and dangers and shall give to it inner strength. Receipts after the style of the cooking book are easily made out for every calling, but what we are aiming at is a larger task. Only if we can go back to the ultimate conditions and to the fundamental factors involved can we hope to see the calling in its needs and in its true perspective. Our dis-

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cussion will therefore often have to lead us far away from the immediate concerns, and yet even if we apparently move in a sphere of abstractions and ideal thoughts, we shall always have the concrete demands of life before us.

Of course the first step must be an effort to make a general survey in order to group our material. What is demanded by any successful achievement?

Let us take any chance case. It makes **Knowledge** no difference whether we watch the **of the** physician who treats his patient for **Facts** pneumonia, or the cook who prepares an omelette, the engineer who builds a bridge or the traveling salesman who sells shoes to his customers, the farmer who plants his squashes in the field or the mathematician who solves his problems. What is their common situation? Each of them—and the same holds true for every single occupation which the statistics of the census bureau may enumerate—assuredly demands a certain knowledge and a certain acquaintance with a group of facts, some theoretical learning. The mathematician and the doctor must know by far more and by far more difficult combinations of facts than the cook or even the farmer. Yet it is indeed theoretical knowledge to know how many eggs are needed for an omelette and how the fire acts on it. The farmer must know when it is the fitting time to plant his seed and how the right seed looks, the salesman must know the varieties

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of his goods and the engineer the properties of a steel bridge.

Yet it is evident that there is no calling, not even the most scholarly, which is dependent upon knowledge alone. However much the physician may know about diseases of the lungs, he Technical Skill cannot really treat the case unless he is able to perform percussion and auscultation in order to test the lungs.

That is, he must be able to do certain things and have the ability to perform such actions, to listen to the noises in the lungs in respiration and to produce the resounding of the chest by tapping movements. He must have gone through a careful training; mere reading about it would never have given him the skill and practice he needs. But with the work in the kitchen it is no different. Though you know the cooking book by heart, you may be a poor cook; you must have learned to do things. Either others showed them to you—then you have learned by imitation—or you tried for yourself and slowly learned by experience, but in any case you must master the technique and must have learned to turn your omelette in the pan. The engineering art of the bridgebuilder again certainly includes far more than scientific knowledge, even if we expand the knowledge to cover the whole ground of applied science. The knowledge of practical engineering still remains different from the real training. The bridgebuilder must have learned how to use his knowledge for his practical task; and the

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farmer must know how to scatter and to cover his seed. If his nerves and muscles have not learned the technique and have not been trained in such practice, his harvest will be poor. The traveling salesman has as his material for practical activity not things but men; he must persuade them, he must offer his wares to them in the most attractive manner and suggest to their minds the resolution to buy. Again this is an ability, a practical achievement which lies in an entirely different direction from the mere knowledge; and many a man who knows much, may yet be unsuccessful in the mastery of this practical performance.

Even the mathematician when he solves his problems and writes his scholarly books has not only to understand his theoretical science. The knowledge of all which mathematicians have thought would never lead him to the mastery of new problems if he had not also learned a certain technique of approaching the unknown. He does not have to deal with nature like the cook or the physician, the farmer or the engineer, nor has he to deal with personalities like the salesman or the teacher or the lawyer; he has to deal strictly with ideas. But those ideas he must know how to handle and that is a technique which demands its training just as the other practical occupations. Even in such a very abstract field as mathematics or any other scholarly undertaking, the ability to do the work must therefore be separated from the knowledge and Training

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of the facts. The learning of the knowledge and the training in the practice of doing certain acts are both indispensable for every single calling.

Of course they support each other, they are intertwined with each other, but we cannot understand their meaning if we simply mix them and confuse them with each other. We must clearly understand every time what is knowledge and what is practice, or what is information and what is training, what is science and what is work. It is entirely misleading if this whole practical activity and the training for it are simply grouped under the heading knowledge and again under the subtitle, practical knowledge, or knowledge of applied science. No, knowledge of applied science is always still knowledge and nothing else; but the practical application itself, the doing of the acts, the training in the ability, is something strictly to be separated from the theoretical knowledge of such applied science. To know how cooking ought to be done is the result of learning in applied science, but really to be able to cook demands in addition the training in the practice of cooking.

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All three of these characteristic features of the vocational life obviously refer to the personality. The outer surroundings, whether they be the narrow home or the wide arena of the world, give the conditions under which the personality can find room for his work and can perfect it. But it is the personality itself which feels the need, which possesses the knowledge and which carries out the work. To bring these personal elements to their distinct expression, we can say that there must be feeling, thinking and doing. Indeed it is the feeling which makes us aware of a need, that is, of a displeasure which is to be removed by the fulfilment of a desire culminating in a feeling of satisfaction. It is the function of thinking which in all its developments, from the simplest observation and remembrance to the most complex scholarly and scientific study, masters the facts; and it is the power of doing which, by the impulses and volitions of the mind and by the movements of the body, performs the activities. As soon as we have this threefold aspect of feeling, thinking and doing consistently before us, it will never be difficult to recognize the essential elements and their mutual relation in any life activity. Every effort to ignore a part and to deduce the energies involved in vocational life from mere knowledge or from mere training or from mere desire would distort the perspective.

We have called these three essentials three dif-

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ferent aspects, and if we look at the whole reality of life in a bird's eye view, we must acknowledge that this is the most suitable term. Life is not divided into a region of feeling and another of knowing and a third of doing. There are no water-tight compartments in our souls. Even in the most trivial activity, our feeling, thinking and doing at first and primarily appear as a unity. Whatever our will aims at and whatever thus becomes material for our deed is at the same time the object of our knowledge and the act itself is controlled and guided by our feeling. If I grasp for the glass of water before me, my feeling of thirst and of desire for the satisfaction by the cooling drink, my will to bring the glass to my lips, my power of moving my arm and my knowledge of the refreshing and harmless qualities of the liquid are fusing into a perfect unity. It is only a later thinking about the situation which makes it possible to resolve this unity into its elements and to discriminate the will and the feeling and the knowledge.

We may go still further. We would express the reality of our life experience still better if we were not to say that willing and feeling and knowing are intimately combined, but we ought to say that that which we experience does not even contain any such three-fold division. In our practical life it comes to us as one experience and it is only through the interest of our thinking about it that we look on that one experience from three

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different points of view. Our drink of water is then under one aspect, something to be known, under another something felt, and under a third aspect, something acted upon. This unity which we find in every trivial little experience dominates our vocational life in the same way. We discriminate the knowledge, the training and the satisfaction. In our social life of the community teaching and preaching, farming and building, trading and fighting, are going on without being divided into various parts; the knowing and doing and feeling there too are completely blended. In the midst of life the worker is not aware that demands and knowledge and practice are meeting together in his daily occupation. Again it is only the later consideration of the thought which looks on the life work from this threefold standpoint. But as soon as we are to think about vocation, we must indeed do justice to every one of the three points of view.

If we speak of the knowledge element, the practice element and the feeling element in our callings, we always deal with the same experience,

only seen under three different aspects.

The Trinity of Thought

The same undivided life unity becomes under the aspect of thinking a world of sciences, under the aspect of doing a system of work, under the aspect of feeling a system of demands and their fulfilment, that is, a system of motives. Accordingly, if we speak of science, of work and of motives, we have in a way a threefold abstraction before us. In

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life they are one, but in our thought about our life and in our thought about our possibilities of becoming more effective in life, we must do justice to this threefold division. The unity must be resolved and that which is knowledge to be learned, must cleanly be separated from that which is practice in which to be trained, and from that which is the feeling of demand to be satisfied by the vocational labor. Only if we perform this abstract division can we fully understand the characteristic inter-relations which control the inner unity of such work.

If we were to try to express this situation in a graphic form, no diagram would seem to do more justice to all the characteristic features than a

triangle constructed around a circle.

The Circle in the Triangle The circle may stand as a visible symbol of our real life as we experience it in our daily pursuits. In the midst of this circle there is still complete unity, but this one and the same circle is reached within the triangle from three different corners. The whole circle falls into every one of the three angles. Seen from any of the three corners, a definite third of the circle is cut off, and this may be the graphic symbol of the way in which life appears under each of the three aspects of thinking, doing and feeling. Each of these three parts of the circle becomes in this way the basis for a smaller triangle which lies outside of the circle. Let us take these outside triangles which are

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built up on the three sides of the circle as symbols of those abstract classifications which are built up on the experience of life by human thought from these three different standpoints. Thus we have outside of the circle of life in one corner the whole system of sciences, in another the whole system of human activities, and in the third corner the classification of human demands which seek satisfaction. In this way the circle of life becomes enclosed within the triangle of knowledge, work and motives. And the relation of any vocation to these various parts is easily to be traced in the diagram by connecting lines. (See page 48.)

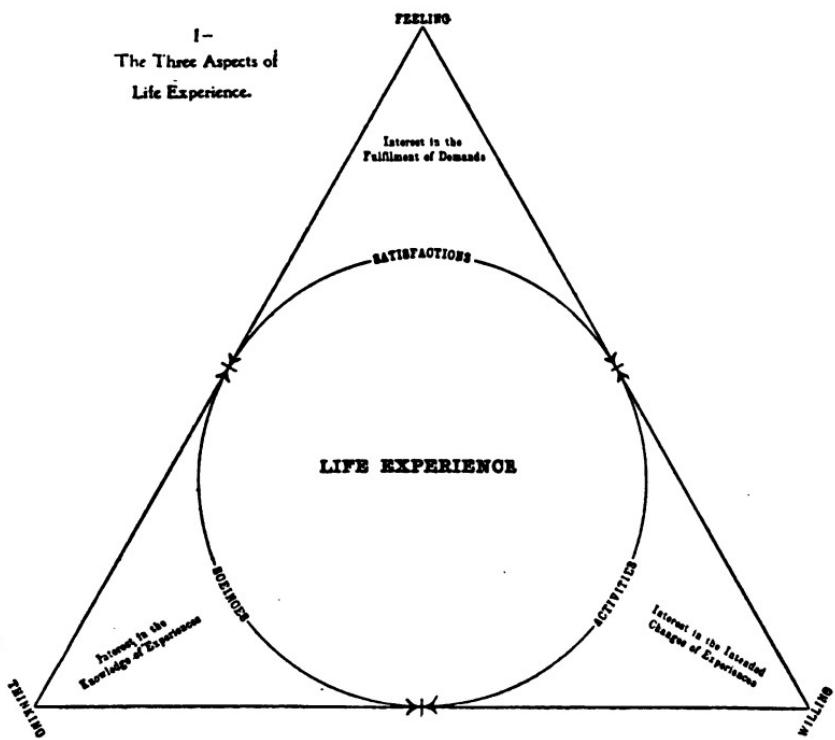
But before we examine these connecting thoughts, before we study and express graphically the relations of the vocations to the special mo-

Threefold Division of Our Inquiry tives and special sciences and special works, we must understand clearly how life presents itself under every one of these three aspects. We must therefore first study the whole system of knowledge without any reference to the applications in particular vocations. We want to see how the various parts of knowledge are related to each other and what each means in reference to life itself. After that we must study the world of human activities, again at first in a purely systematic way. Then finally we can turn to the third corner of our triangle and examine the system of human demands which are to be fulfilled and inquire why and how each vocation is related to

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particular elements in those systems of demands, of knowledge and of work. In this way everything accidental is eliminated. Every element is brought into relation with the totality of human efforts. All the knowledge which we need for our life work has then found its definite place in the whole world of human science, and every practical activity has found its necessary and characteristic position in the world of endeavor. Above all, every motive for an occupation has then gained its right perspective and can be understood in its complex relations to knowledge, work and life. In our next part we must therefore turn to the system of knowledge, then we come to the system of work and finally to our chief part, the system of motives and occupations. Our diagram will serve us throughout our inquiries. Through the whole of our work we shall try to fill out the triangle of the threefold interest which encloses the circle of life and in the midst of life the whole richness of useful vocations.

I—
The Three Aspects of
Life Experience.



PART II—KNOWLEDGE

VIII

THE WORLD AND HUMAN EXPERIENCE.

Our task is definite and clear. We want to gain a survey over the whole of human knowledge. We have seen that workers in every vocation, surgeon and judge, carpenter and miner, seamstress and laundress, must have acquaintance with some facts, that is, some knowledge. Certainly they all have to do certain things, but besides their doing, they must know; and we want to turn our whole interest at first to this side of knowing. Yet our interest is not simply in enumerating all the possible kinds of knowledge and in giving an alphabetical list of the human sciences from aesthetics to zoology, but in bringing order into the abundance of human knowledge. The usual lack of system is just what often makes the learning in the service of vocations so haphazard and accidental.

Even our school education too easily becomes meaningless to us and apparently useless for our vocational life, unless we understand the position

Unconnected Knowledge of that which we have learned in the whole system of knowledge. We may have studied a little history and some algebra, some economics and literature, or chemistry or fine arts or bot-

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any; and yet these have no inner connection with our life purposes, they do not stand in a definite place in the midst of our interests; they therefore remain ineffective and will soon be lost. There are too many who vaguely feel as if their school knowledge, outside of reading and writing, were a useless burden, and usually they quickly succeed in getting rid of it by forgetting what they have learned by hard labor. Any study, whether immediately leading to vocational service or indirectly linked with our life work, can be effective only if it does not stand isolated; it must have a definite place in our whole view of the world.

Our study of human knowledge will therefore have nothing in common with an encyclopedia or with a series of little text-books. Such an encyclopedia would give a neat account of the chief things which the scientists know to-day as to rattlesnakes and volcanoes, or diseases of the stomach, or what the historians know as to the kings of the old Egyptians, or as to the literature of Spain, or as to the poems of Milton; but all this cannot be our concern here. We are not to supply any knowledge, not even the elements of any science or any history. We do not want to tell facts and dates or laws of nature; we leave all that to the study of those who are interested in a particular line of knowledge, and who need that special study for their particular life work. Our only purpose is to make clear where every special study belongs. We do not intend to walk along the road from which all

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the facts of knowledge can be seen and mastered, but we simply want to act as a guidepost at the side of the road to point out in what direction to move.

Of course every school catalogue tries to group somehow the various sciences. All the historical studies may be classed together and all the language studies and all the natural sciences. But it is evident from the start that even in such groups we ought not to deal with mere lists of studies as if they were all on the same level. On the contrary, any one may stand above another. Every little group represents a whole hierarchy, with higher and lower members. Moreover, those various groups, even if each one is ordered in itself, represent a scattered multitude without any principle of arrangement. Yet just here are centered the difficulties. How, for instance, are the historical studies related to the biological sciences? How are the applied sciences to be classed with reference to the theoretical ones? Where is the place of philosophy or of theology, of mathematics or of economics? Our catalogues at their best are satisfied with a chance presentation. Moreover, they contain only certain fractions of the whole knowledge. If a survey of the field of human wisdom is intended we cannot omit any knowledge which deserves anyone's interest, and it is the very completeness which would allow the right perspective.

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But we already know the way by which we can approach our difficult task. We have said that knowing is a special, one-sided aspect. In ordinary life we always not only know but at the same time do and feel. Now we are not here asking what satisfies our feeling, nor how we can change anything by doing, but we are asking only what we can know. We must examine this, our knowing, as if it stood quite alone.

It may be said from the start that we stand here before an extremely difficult question. In a way it is the last and highest question which man can ask. Our eye sees everything with only the one exception that it does not see itself. In a similar way our mind may look out and may know a thousand things before it ever begins to think of itself, that is, to think of its own thinking. Yet just this is now our problem. We want to understand all human knowledge and we have said that it means looking on the world from the special point of view of thinking. We must therefore think about our own knowing and thinking.

It would be absurd to fancy that such an inquiry can be made in an offhand way. If we come to such an extremely difficult question, there is only one possible way; we must think it clearly and persistently to an end. And the worst of it is that, after all, each Knowledge one must think it for himself, quietly and seriously. There is no use in simply believing in the arguments of another. No

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doubt this is hard work for everyone who wishes to understand the meaning of knowledge. Every special science can be boiled down and all its difficult parts may finally be left out, and what remains may become easy, pleasant reading which does not demand much labor and attention. Such primers can be read like a story; but no one would dare to tell the higher mathematics in a style which does not demand serious effort. The problems would be falsified if they were told in the stimulating manner of a newspaper editorial. There are problems in the world which you must either go around and avoid, or you must labor with them, if you want to become their master. The problem before which we stand is just of this kind. For a while it demands a persistent effort of attention, and those who prefer the easy way around may leave us here and join us again when we come to the study of activities and work. But those who are not afraid ought to face the whole problem: what is knowledge, what is its purpose and its meaning and what are its underlying principles?

On the other hand it may be said that the difficulties of following such a general discussion are often overestimated. They must not be compared with the difficulties which we find in special sciences where particular knowledge is needed. If a physicist explains to us the relations between light and electricity we shall immediately be at a point where we can no longer follow unless we understand higher mathematics. And if a scholar of Indic philol-

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ogy explains to us his studies, we may be unable to understand a word because we have never learned the Sanskrit language. But with problems like those which we have before us, it is very different. They do not presuppose a special knowledge; they only demand clear and persistent thinking. It is a question of attention, not of information.

We turn, therefore, without fear to our fundamental question: what does it mean that we have knowledge of the life experiences? When we took

Our Fundamental Question

our first outlook and sought a visible diagram as a symbol of the situation, we said the central circle was the united experience of life which is looked on from the three corners

of the triangle with the interest of thinking, of willing and of feeling. But here we stand before a first difficulty. Have we really a right to say that all our knowing refers only to the knowledge of life experiences? We know the whole world, the whole infinitely great universe, the sun, and the stars of the Milky Way. Compared with them is not our little human life experience an insignificant, tiny affair? If we are really anxious to begin at the beginning, ought we not to start with that whole, gigantic world, instead of with mere human life and human experience? Human life, after all, belongs only to a small organic creature which moves on the surface of the earth; and yet this whole earth is as small as a particle of dust compared

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with the endless distances of the cosmic universe. The whole of human experience covers only a little fraction of those trillions of years through which the stars have moved. But here, at the very threshold, we ought to be very careful and ought not to shrink from a thorough understanding of the situation.

It is quite true that the astronomers calculate that those stars we see have moved through uncounted trillions of years, that the earth cooled off

The Standpoint of Human Experience many millions of years ago and that our globe circled around the sun long before organic life grew on its surface. And the biologists add that this organic life had to pass through millions of years before it led from the simplest living beings to the highest, to man. At the first glance, therefore, it seems evident that a study of the world must start from those early beginnings and not from human life experience. But let us look deeper! Astronomical and biological calculations are themselves human knowledge worked out from particular human experiences. What is given is not the calculated world of trillions of years; what is really given is the human experience of seeing the stars and their movements, and the human thought concerning them, which we call science. It is a part of human life experience that we see the earth and living beings and man; and it is a further step in this human experience that man thinks about these

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wonders of his life and that his thinking thus leads him on to those complex sciences which he calls truth.

The real starting point is the human experience. In the midst of our study of science we can think of man as if he were merely a tiny particle in this cosmic universe. But if we are really undertaking to examine the meaning and the order, the right and wrong of the sciences, then we must start from the evident fact that all these various sciences, including astronomy and the biology, are only human efforts by which men interpret human experience. The calculation and speculation of science may go endlessly far beyond the experience itself and may reach out to times and spaces and realities which no human perception can ever grasp. But they all have been based on particular human experiences, have been worked out in order to understand those human experiences, must be referred to human experiences and are, as products of human thought, acts of human experience throughout. We can deal with the plants and the beasts, with the gigantic stars and with the smallest atoms because they are involved in our life experience.

Therefore, to understand human knowledge means to understand human experience from the standpoint of the interest in knowing. Even if we find a science of God, it can only be an interpretation of our human experience of God. No knowledge can have any other basis than life experience,

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and the scientific knowledge of this life experience is again life experience itself. Hence we can rely on our first symbol and diagram. It is indeed the circle of life experience which is looked on from the standpoint of knowing, and the whole world of the suns and stars and of trillions of aeons is itself fundamentally only a part of our human experience, and only as such is it material of knowledge.

Thus all possible knowledge refers to human experience, and any special group of experiences may become material for a special branch of knowledge.

We may have the knowledge of beasts, Content or of plants, of stars or of stones, but of the Sciences of course, just as well, the knowledge of the legal demands of the state or of the religious demands of the church, the knowledge of the economic interests of men or their intercourse in speech, the knowledge of works of art and the knowledge of literature, as our experiences certainly cover not only the things around us but also our relations to men and their work. Every one of such sciences may lead from that which is really experienced to that which must be added in thought in order to understand the actual experience. The geologist must therefore accept the glowing inner core of the earth as just as real as the surface which he experiences. In like manner the historian traces the human struggles back thousands of years in order to understand our present social life which we experience, and the relics of older civilization which we find. In short, every-

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where the actual experience becomes enlarged in our knowledge by all which is needed by human thought to understand it. Yet experience remains the only safe ground and therefore the most immediate basis for classification of knowledge.

IX

THE MEANING OF KNOWLEDGE.

What do we mean when we speak of knowledge about our experience? It ought to be evident that to have knowledge concerning our experiences must be something more than a mere living through them. But we must discriminate two different meanings which the word knowing may have. If we take it in the narrower sense, then we might say that to know experience is less than to live through it. In our real life every experience is not only known, but also contains an element of feeling and of action. I see the landscape before my window, and in so far as I see it, I know it; and yet in my real experience of this landscape I not only know it, but also enjoy it. And moreover, I look out on the landscape as something where I might take my walk. Therefore, I leave out some features of my experience, if I look on that landscape as something which I only know and which does not come in question as something which I like or of which I may make use. Knowing, then, means that side of our life by which we become aware of our

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experience. It is evident that in this kind of knowing nothing is added to our experience, but something is taken away. It is experience itself with the feeling toward experience left out. There cannot be anything in any possible experience, whether thing or man or purpose, which is not in this sense "known" in the very act of experiencing.

But it is clear that if we speak of knowledge in the way in which science deals with it, we mean something very different. The knowledge of the scholar is not simply the becoming Scientific aware of an experience. The child Knowledge who laughs or weeps knows his joy or his pain in the midst of his living emotion; and yet we should not say that the child has knowledge of those emotions in the sense in which the psychologist may know them. The knowledge of the psychologist, and of any scientist, does not simply consist in having that experience, but with them knowing means to know something about it, and that means to go beyond that particular bit of experience. To see the tree in the landscape is merely to be aware of it; to have knowledge concerning this tree means to know something which is not contained in this immediate life experience. If I have knowledge concerning the tree, I must know perhaps its name and the botanical class to which it belongs and the kind of seed from which it came and the fruit which it will bear and the tissues which I should find if I were to cut the tree and examine it under the microscope, and a thou-

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sand other facts, all of which refer to the tree, but are more than mere experience of it. Thus, knowing in the sense in which the seeker for truth takes the word, offers something more than the naked experience. Whenever in future we have to deal with the idea of knowing, we shall always mean knowledge in this higher sense of the word. It is a knowing which is more than merely being aware; it is knowledge about the thing or the purpose, a knowledge which finds its highest expression in the special sciences.

In this sense we may say that life itself does not offer us any knowledge. Life only leads us to the point where we may resolve our complex experience into becoming aware, feeling and willing. But as soon as we step further from the being aware to the knowing about, we move toward the ideal of science and have left the naïveté of life. Then we look on life from that special aspect of seeking the truth concerning life. Life, as such, has for us roses and lilies, but no botany.

If we carry this into our little diagram, we may say that in the midst of our circle of life, we have merely the knowledge which means awareness, and only when we reach the periphery of the circle and enter that corner of the triangle which is controlled by the aspect of knowing, do we come to the knowledge about the experiences, to the system of sciences.

Hence our whole interest belongs to the question: in what way do we deal with the life expe-

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rience when we seek knowledge about it? In what way is our truth of the life reality richer than the mere life-experience with which it deals. This question can be answered by one single word, because it is a fact that all possible knowledge is controlled by one and the same principle. This decisive word is: connection. To connect experiences means to make them accessible to our scientific understanding. As soon as a fact, a star or a flower, a word or a deed, stands alone, we have it, we are aware of it, but we know nothing about it. The scientist asks: what are the motives and the consequences of the deed? What is involved in the word? What are the causes and the effects of the event? How is it similar or dissimilar to other facts? In short, how is it related to all our other experiences? In the true natural science every grain of sand is connected with the whole universe and every decision of man is connected with the whole history of mankind. But however far from or near to its ideal completion a special science may stand, whatever science proposes must express some connection.

It is in the service of connection of the single fact with other groups of facts that science seeks the uniformities in nature and formulates the general laws. And, again, it is in the interest of connection that it studies how a given fact falls under the general laws. All which our knowledge contains is gained by this effort to bring experiences

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into connection and thus to overcome the singleness of the chance experience. The parts of a mathematical proof are connected as are the parts of an historical event or the causes and effects of a natural process. Through space and time and through human purposes and ideals a network of relations is woven. Everything is somehow related to something else.

If we are to think at all, we must understand the world of possible experience in its connectedness. We express these connections in our judgments.

Truth All our sciences are groups and systems of judgments. This characteristic
Versus of knowledge comes to sharpest relief
Beauty when we contrast it with the attitude
 of the mind when not knowledge and
 truth but beauty is sought. The ^{Poet}, too, tries to
 understand human life, and the artist, too, grasps
 outer nature. But there we have exactly the opposite demand. While science connects, art must isolate, that is, must keep the fact for itself alone. What the artist shows us must always be complete in itself and must never lead beyond itself. What is told in the novel has no connection with anything else in the world, and the persons in the painting can never reach out for anything which lies beyond the frame. This perfect isolation of that which art offers to us is its life element. There every connection is sharply cut off. We do not ask for anything which is not said in the poem or in the story. All the elements of connection which force

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themselves into the beautiful are disturbing elements and belong to our knowledge, not to our aesthetic attitude. The more experience stands by itself, the more it can live up to the demands of artistic unity. But it will satisfy the demands of scholarly knowledge only if it has entered into the deepest possible connections with the remainder of the universe.

To satisfy this demand for connection, the experience of the thing must be molded and shaped by the human thought, until it can be understood as part of such a connected whole. If we were to take things simply as we see them or touch them, they would not allow the grasping of the connections with the foregoing causes or with the

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the following effects. We must put in their place a new vision of the things. We may, for instance, put chemical invisible atoms in the place of the clumsy object which we see before us. Science tells us that a thing is made up of such little particles just in order to make it possible for us to understand the connections of its present state with preceding and succeeding states. As soon as we consider water as such a group of little parts, then we can understand how those various changes, such as freezing and evaporating, can go on; we can connect the liquid water with the ice and with the steam.

The more general the connections which our thought finds in the experiences, the more we

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move away from the actual things. We may build up a whole system of sciences which stand further and further away from life experience. If we group all sciences in such a way, we must finally come to a last knowledge which deals with the laws of thought themselves, as of course they determine everything which is thinkable at all. Such a science belongs in the corner of our triangle furthest from the base of our life circle. It is that science which the philosopher calls Theory of Knowledge, that which determines how we can have knowledge at all. It must now be our task to find what kind of experiences life brings to us and how by connecting them we can gain the various corresponding sciences.

X

THE CHIEF DIVISIONS OF KNOWLEDGE.

At first we wanted to group the various parts of human knowledge with reference to the various groups of our experiences. We must therefore seek for some general principle of classifying all which enters into our life. One group seems to stand out at once in Time and Space with perfect clearness, the objects which we perceive. We perceive the moon and perceive the tree, perceive the water and the fire, perceive the house and perceive the men. And we perceive not only single objects, but the groups which are together in space, not only the brick but the house, not only the house but the city. Moreover we do not perceive only the combination of things in Space, but also their succession in Time. We perceive not only the stone, but how the stone falls down, and not only the quick but also the slow changes, how the dog moves and the grass grows and man lives and dies.

As this group of experiences embracing the perception of the outer world has always been the most

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impressive group of facts for thinking men, every effort toward science begins with an explanation of those outer things. The next step is a classification and grouping together of those objects which have common characteristics. They are connected through our thought, and by classing similar ones together, we learn to understand what we have to expect from any one of them. For this classification we must introduce new principles. The most important has always been that of dividing physical, outer things into "living" and "not living" things. The living may be divided into men, animals and plants; the not living perhaps at first into those which belong to our earth and those which belong to other parts of the universe. Those not living bodies which are on earth may again be divided in many ways, for instance, into those which are solid, those which are liquid and those which are gases; or from another standpoint, those which have been created without human activity and those which have been artificially made by man. All such smaller classifications are to a certain degree arbitrary. Moreover, they do not exclude the possibility of their overlapping in borderland regions. We may separate the plants and animals, and yet may acknowledge that there exist lowest organic beings which might just as well be classed with the plants as with the animals. Still the fundamental tendencies are clear and are familiar to everyone.

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Our knowledge of the physical world therefore groups itself from the start into the knowledge of the inorganic and the knowledge of the organic world. That of the inorganic world consists of our knowledge of the cosmic bodies and the knowledge of the bodies on earth. The manifoldness of the organic world is separated into the sciences of plants, of animals and of men. We shall soon examine more carefully how these sciences of the physical world must be further divided, how they can be grouped from different points of view, how they lead to more abstract sciences, how physics, chemistry and mathematics are related to them; in short, how the sciences of the physical objects, from the microbe to the solar system, must be arranged.

But now we first turn in our general survey to the other fields. Are the physical objects the only objects which we experience? I see the tree and the rock and call these perceived objects my experience. But how is it, if I see that rock or tree in a dream or in a memory or in the fancy of my imagination? Is not that, too, an experience, an object which I have before me? Such a remembered thing, even if my memory is false and presents illusions to my mind, may yet be as persistent and stubborn as the outer world which I perceive. Though the freaks of my imagination may carry me to impossible fancies, nevertheless I experience them with the full warmth of living interest.

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Hence, I have in these ideas also objects, although they are evidently very different from those physical things. I may call them mental objects or psychical objects; but I must agree that they have just as much right to be classed among my experiences of objects as those which I see and hear and touch in the outer world.

What makes the difference between these psychical and those physical objects? Do not say that the physical are lasting and the mental are fugitive. The most quickly passing electric spark is a physical thing, while the memory of a sad event may last for years and years in our mind and stand there unchanged as a most stubborn psychical object. We cannot even say that the physical objects are beyond our control while the psychical are under our control. We can often more easily change the physical things with our hands than the psychical objects with our minds. Then, how can we discriminate the one from the other? How do we do it in daily life? If I believe I hear a noise, I may be doubtful whether some distant explosion has really occurred or whether it was an illusion, a hallucination of my own. But as soon as others in the room assure me that they heard it too, I feel safe in saying that the sound had objective character, belonged to the physical world. This points to what is really fundamentally meant by the difference between physical and psychical experiences. Phy-

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sical are those which are objects for every possible person; psychical are those which exist for one experiencing person only. My memory ideas or my imaginative ideas are exclusively my own; no one else can take the slightest part in them. No one can see my fancies, no one can listen to my memory ideas.

Yes; even my perceptions of my present surroundings in this room I may consider in both ways. As far as I treat them as impressions which we all can share, they are the real chairs and tables, physical things, but in so far as I treat them as my private experience, I consider them as psychical objects and call them my ideas of the things in the room. The house which I see through the window is an experience which I call a physical one in so far as I take it for granted that everybody else might perceive the house just as I do. But in so far as I am the one who perceives it, I may entirely abstract from the fact that it is a possible object for others, too, and may consider it only as my individual experience. In that case I speak of my perception of the house. My perception is then simply a psychical object, just as my memory idea or imaginative idea would be.

Accordingly, we have in our experiences, objects which are not physical things, but psychical, namely, those objects which we think of as given to our personal experiences only. Just as those common objects build up for us the whole universe in space and time, these psychical objects build up the

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world of consciousness, the mental world which everyone has for himself alone. The sciences which deal with this second group of objects are the psychological sciences, which thus stand in contrast to the physical sciences. These psychological sciences must therefore give a full account of the contents of consciousness.

Psychological Sciences

XI

THINGS AND PERSONS.

At the first glance it may appear as if we have now enumerated all the human experiences. We have spoken of the physical and of the psychical objects. Is there any further group of objects? No. Are we not therefore justified in saying that there cannot be any other sciences than sciences of the physical and of the psychical objects? Certainly not! There are indeed no other objects in the world, but it would be absurd to claim that experience of objects is the only possible kind of experience. In every pulsebeat of life we pass through experiences which we cannot class among the objects. If we were to characterize them by one decisive feature, we might say they are experiences of our will, of activity, of personality. Perhaps, in contrast to objects, we might call them subject experiences. To understand the whole of human knowledge, it is most important and most essential to see this difference as clearly as possible.

If I have a stone or a plant in my hand, I can describe those objects. In a similar way, if I have

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a memory image of a landscape, I can also describe that mental object in me. All objects in the world, physical or psychical, are describable. They are a material which I notice and in which I can discriminate different parts, and through my descriptions I can communicate to others those parts, calling them green or blue, or hard or soft, or sour or sweet, or square or round. But if I have the subject experience of being glad or sorry, of preferring this and hating that, of intending to do this and being doubtful whether I do that—then the case is entirely different. Those feelings and decisions and attitudes do not stand before me as material to be described. They are to be understood. I cannot communicate them to others by showing the parts of which they are made; but I must ask others to agree or to disagree with me, to understand what I want, and I can only interpret the meaning of my will. In the same way, when I grasp the will of others, I may disagree with them or I may appreciate their attitude, but I do not perceive them like things. It is an entirely different kind of experience.

If we have a number of events in the world of objects and aim to connect them, we study how far one is the cause and the other effect. Accordingly, we link our things by the natural laws. Whenever one change in the objects occurs, another change must follow. We call that an explanation; and the world of objects demands from us a

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careful explanation as well as description. But we do not do justice to the will acts, to the joy and grief, to the liking and disliking, if we try to explain them. One purpose does not interest us as the effect of another, but **Human Personality** one is involved in another. If I try to understand the pending bill before the legislature, I am not seeking its causes; I seek to understand and to interpret to others its aims and its meanings. I refer it to that which is involved in it. I do not explain it, but I interpret and appreciate it. Whenever human personalities speak to us with the pulsebeat of life, they want to be understood in this way, and what they bring before us is entirely distorted if we consider it only as an object instead of considering it as such a will act. Of course, we can look on any man as a mere object: then he is a thing to us among other things, a body with enclosed mental states. But in that case just what makes him a personality to us is left out. That must be understood and not merely perceived. Our friends are not simply moving objects with enclosed ideas to us, but they are centers of will, of attitudes with which we harmonize. We do not try to explain them, we do not search for the causes of their behavior; we enter into the spirit of their intentions, and for us what they do is linked not with the preceding causes, but with their aims and ends. The objects demand an understanding of causes, the persons an understanding of purposes. The physician of body and mind

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may look on his neighbor from such a casual point of view; but if we stand in the midst of life, we always approach friends and foes, neighbors and customers with the interest in the meaning of their will and their purposes.

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Our duties lie in ourselves, but they are independent of our arbitrary desires. We must will them, and even if we are not obedient to them, yet our inner, true mind wills them. The Normative philosophers call such will acts Sciences "norms." They are normative will acts, that is, will acts which are binding for every reasonable thing. Such will acts are those which build up the world of ideals, the true, the beautiful, the morally good, the just, the religious. For instance, the acts of true, logical thinking are not under the arbitrary caprice of the individual like our behavior in a market. I will to buy apples or I do not will to buy apples. I am free to decide; it is my personal affair. But when I draw the logical conclusions from some arguments, my thought is a decision which I will with the feeling that I am bound to will it. All our logical and aesthetic and moral and religious willing belongs to this special kind of experiences. They are will acts which are not individual, but normative, binding for every single person. Hence they do not belong in the historical account of will purposes. They form a group of purposes by itself. They are the material for the so called normative sciences. There belong logic and aesthetics and ethics and philosophy of religion and other parts of philosophy.

Accordingly, we have two chief divisions, the sciences of objects and the sciences of purposes.

THE KNOWLEDGE OF PURPOSE

The sciences of objects are those of physical objects and those of psychical objects; Basis of Our Classification the sciences of purposes are those of individual will acts and those of normative will acts. Hence, we have the physical sciences, the psychical sciences, the historical sciences and the normative sciences.

Some may respond that we might simplify the story. We have here the sciences of psychical objects, that is, the sciences which describe and explain the contents of our minds.

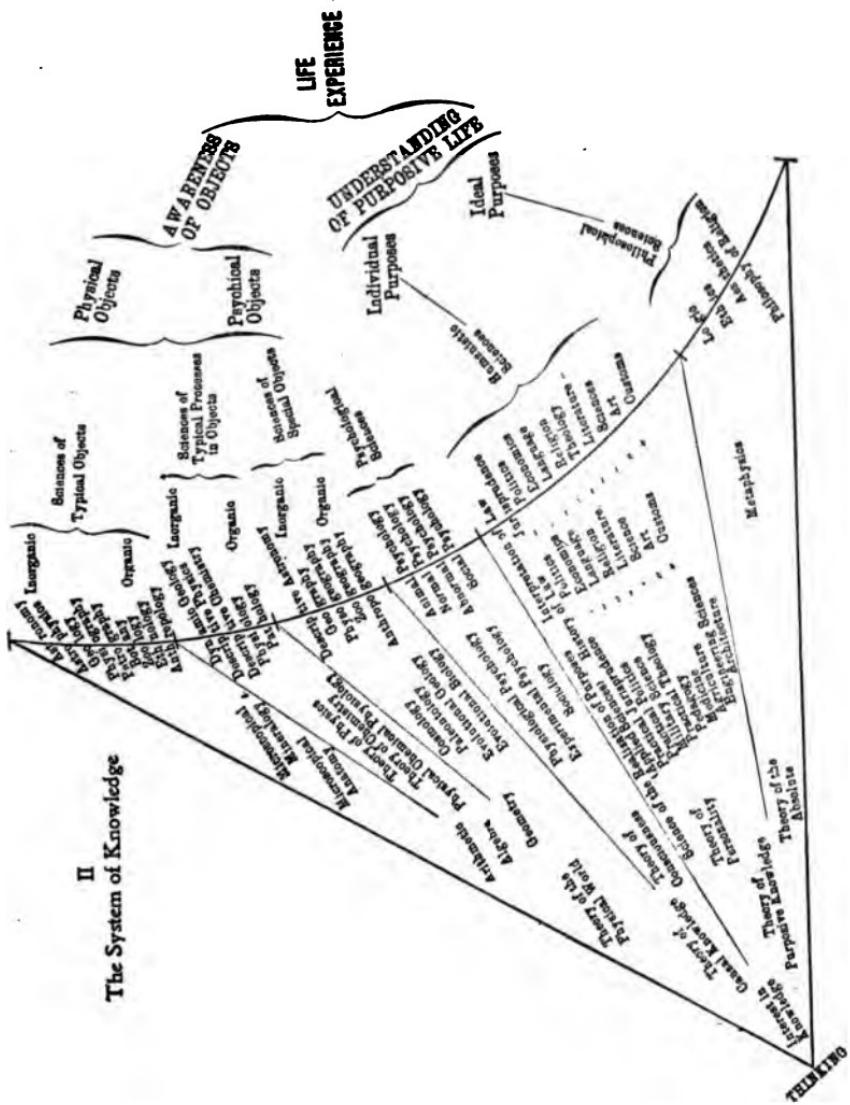
An Objection Considered Should we not, after all, have a right to bring the historical and the normative sciences under this general heading of psychical sciences? Are not those will acts of which we speak, those intentions and purposes of our fellow-men and all those ideal demands of our norms also contents of our mind? But we should entirely miss the essential point if we should make such a concession. Certainly, we can consider all those historical will acts and decisions and those ideal demands as psychological facts. It is even the duty of the social psychologist to consider them in such a way; but seen from such a standpoint the real historical meaning is lost. The spirit of history has then been banished. What remains is the account of man as a natural being, but not as an agent of real purposive life. All processes then become simply objects of description and stand in the rank and file with all the

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other natural processes in the world. But to understand the purposive life as we really experience it, in state and law and art and religion and even in the most trivial intercourse of family life and the life of the market, man is to be understood, to be appreciated, to be interpreted, but not simply to be treated as a mental object. Thus we have no right whatever to make the historical and the normative sciences simply branches of psychology. The standpoint is an entirely different one.

If we are to include all these new results in our diagram, we must now give our attention only to that corner of our large triangle which represents the aspect of knowing. One-third of **Interpretation of Our Diagram** the circle of life was included in this angle of knowledge. That first stage of knowledge which we called mere experience or awareness still lies within the circle of life itself. There we have the awareness of the single stars and stones and plants and animals and men and ideas, and there, too, the experience of the single desires and decisions and demands and propositions of individual men. While all this would still fall into the circle which graphically symbolizes the real life experiences, we must now write upon the circumference of the circle the great groups of sciences which result when we seek knowledge about those various experiences. This third of the circumference of the circle will then be divided into the scientific description of physical objects, the scientific description of psychical ob-

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jects, the scientific narration of historical will acts and the scientific account of normative will acts. In this circumference, indeed, we must confine ourselves to that which is nearest to life, the mere description of those facts and processes and experiences. As soon as we move from there to more abstract laws,—in short, as soon as we begin to explain the sequence of the objects and to interpret the relations, of the purposes,—then we go beyond the circumference, leave the circle of life entirely and move into that sphere of thinking which is represented in our graphic symbol by the corner. It must be our next task to enter into the subdivisions and especially into the grouping of those more abstract sciences.

XIII

THE DESCRIPTIVE PHYSICAL SCIENCES.

We must now look a little more carefully into that highly important group of sciences which deal with the physical world. But here at the threshold, we must repeat the warning that no one is to expect a miniature text-book of science. The content of the sciences must be left to a serious study. We merely want to prepare for such study by drawing a map of the sciences and showing where each one belongs.

The physical universe is made up of those objects which can be experienced by everyone. We only separated them from those objects which everyone can experience for himself alone, the mental objects. We want to group the sciences of these physical things first with reference to the manifoldness of objects, as we have as many sciences as there are groups of things. We have sciences of birds and sciences of stones and sciences of stars and so on. Later, we shall meet an entirely different principle of classification, as soon as we turn from the mere description of things to their explanation. But our first principle is the most natural; we have many groups

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of facts and correspondingly many sciences. We speak of trees and of fish, of liquids and of planets; but let us not forget that even such forming of groups is already the work of knowledge and therefore lies in the direction of science. In our experience we meet the single things. We never see in the landscape the tree in general, that is, a tree which has all the qualities which belong to the idea of tree, being oak and elm and fir and maple at the same time. Only when we have seen many trees do we connect those experiences in that one idea. And then if we speak of trees in general, we have already done a little scientific labor. It is science, inasmuch as it does indeed express a connection of manifold facts, a connection which is very important. It allows us to know that whenever again we meet a tree it will certainly show those properties which belong to the whole group. We usually do not call it science, because it goes on in daily practical life without any special effort. But science does not begin only when a scholar sits down and writes a book. However common a bit of knowledge may be, it belongs to the world of knowledge and therefore to science. Science will take up any such popular proposition and elaborate it and therefore will constantly revise even this formation of little groups. A child may call every living thing in the water a fish; the educated man knows that the whale is not a fish.

The first set of sciences will therefore contain the systematic grouping of physical objects con-

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ceived with reference to their common properties and carefully described on the basis of thorough observation. It is a set of sciences which is a more refined, common knowledge. With carefulness and with richness of observation, it carries on what common life begins. The material is gathered from all sides, the observations of many men are compared and connected, and statements are not only verified but examined with the greatest possible exactitude. The objects here are taken just as we perceive them, but the perceptions of many men are added together and have to supplement one another. In this way we come to the series of descriptive sciences.

The groups still correspond to our common, practical discriminations. Specimens of every important group of objects are familiar to everyone, and therefore everyone sees in life out-groupings of Common Knowledge lines of the separate fields of descriptive knowledge. Everybody knows men and animals and plants, separates them from one another and at the same time separates them from the non-living world; everybody discriminates that which belongs to the earth from that which belongs to the sky, and on earth he separates the minerals from other substances. But in every group even common life proceeds to subdivisions. Men of various races, white and black, yellow and red and brown are separated, mammals and birds and reptiles and fish, insects and worms are discriminated by every-

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one, and so it is with the plants. Everybody discriminates the gases and the liquids, or in the mineral world stones of the granite type and stones like gravel and stones like chalk. In short, the fundamental groups are only more elaborated and enriched in the descriptive sciences. But common experience prepares these efforts of connection.

In common life, also, the interest does not belong only to the things, but much more to their behavior. The changes which result under certain conditions, the processes which follow one another are observed and are found in ordinary life constant and regular to such a degree that our practical dealing with the things is fully based on the confidence that under similar conditions similar results will occur. We not only know the water, but know how it freezes and how it becomes steam, how it dissolves other substances and how it has force to overcome resistance, how it can bear up heavy boats and help the growth of plants. Descriptive science will give account of these regularities in the behavior of the things as well as their forms and differences. With regard to the organisms we must therefore have descriptive sciences of the life habits of animals and plants, and, with regard to the inorganic world, the description must show the changes which we can observe going on on the surface of the earth and in the sky. From the start two

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kinds of processes in this inorganic world will easily suggest separation.

If the water of the sea is swept by the wind and forms waves or if it carries a boat, the water itself is not changed; it remains the same substance. But if the same sea water is heated and the water evaporates and salt remains, the substance itself has been altered. Where there was one kind of material, there are now two kinds. This difference we find everywhere. We may know that iron becomes longer when it is heated, but it remains the same substance. But when iron becomes rusty, the substance itself is changed. Let us call all those processes in which the substances themselves remain the same, physical, and those in which the substances change, chemical. There will actually be experiences in which physical and chemical processes overlap, but on the whole we shall find no difficulty in separating these two fields. All the processes of light and sound, of movement and heat and electricity will be reported in a description of the physical events; while all those changes in nature in which the substances are transformed or dissolved or combined into a new substance belong to descriptive chemistry.

Thus we have two sets of descriptive sciences. The one deals with the properties and structure and form of things, the other with the processes which go on among or in the things. Descriptive zoology studies the animals, botany the plants, astronomy stars, mineralogy the stones, and so on.

XIV

THE EXPLANATORY SCIENCES.

All the descriptive sciences are grouped with reference to the material. They all speak about those physical things or changes in things in a descriptive way in intimate relation to our real experience. They are based on observation. We have graphically symbolized them by putting their names on the circumference of our circle of life, indicating by it that they still stand in close neighborhood to our real life experience. But we said that we must consider still other sets of sciences grouped according to a very different principle.

If we wish not only to describe but also to explain the facts, we cannot remain so near to our real life experiences. We must move away from *Explanatory Sciences of General Laws* them by adding thoughts and theories and speculations and facts which we have not observed, but which we imagine as having existence. If, for instance, we consider the heat of our flames no longer as mere heat in the way we experience it but as movements of vibration of smallest invisible particles, then we are in the midst of a very artificial treatment of our heat experience. We do not see those vibrations; we only think them. Thus they have reality not for our

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observation, but for our abstract thought. Yet this is just the way in which mathematical physics deals with heat. Such mathematical physics is therefore far away from real life experience, while the merely descriptive physics stand quite near to it. In such a mathematical theory, the experience has been transformed into something which exist only in scientific thought. Nevertheless we call such scientific thoughts true, because they are necessary if we want to connect the things with causes and effects. If we enter into the explanation of things, we must therefore create sciences which have less and less to do with the actual experience and are more and more filled with elements of thinking. This is just what furnishes us with the second principle of grouping the sciences. We group them in accordance with their increasing distance from actual experience. In our little diagram we would indicate it by putting these sciences of explanation further away from the circle of life

But it is clear that this step toward the explanatory sciences must lead to very different kinds of knowledge in those various subdivisions which we recognized. If, for instance, we have before us those physical or chemical processes which we observe in our daily life, explanation would mean that we demonstrate them as special cases of a more general law. We have explained the various movements of the stars if we have shown that they are only special cases of the general law of grav-

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tation. We have explained all the observable facts of the light, of reflection of the light, of the rainbow colors, of its passing through glass and so on, if we can show that it all must result from certain general behavior of the ether and that we must therefore think the light as movement of ether particles. But the physicist would not stop there. He tries to connect larger groups of facts and constructs in his thought ideas as to the constitution of the world by which, for instance, all those facts of light and of electricity become combined by common laws of ether waves. In short, the naturalist seeks more and more abstract laws in order to bring larger numbers of processes under one principle.

In that other department of descriptive sciences where we have to do with the description of the actual combination of things, such as the actual Explanatory structure and surface of our earth, the Sciences of explanation cannot take the form of Development any general law. The law is to combine many things or many processes.

If we wish to understand this one earth or this one solar system or this one species of animals or plants; or even this one rock or this one bird or this one race of men, then our thought does not move toward a general law, but toward an understanding of the development. We then conceive our present experience as the result of previous stages which are not themselves part of our experience. We construct them in our thought

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and consider them as true and as really having existed because they are necessary for the explanation of our present experience. In this way the student of our earth is led to geological speculations as to the past of our globe, taking the various layers of rock as indications of successive stages through which our planet has moved. Or he considers our solar system in its development, and constructs that which must be thought as having gone on through trillions of years in order to understand that which we can observe with a telescope today. Or the biologist enters into theoretical ideas concerning the development of life on earth. He speculates how the various species may have been developed one from another and how the present distribution of animals and plants must be thought as the product of a struggle for existence through millions of years.

The descriptive sciences of processes thus lead us to explanatory sciences of general laws; the descriptive sciences of actual combinations lead us to explanatory sciences of development. In a corresponding way we might claim that the descriptive sciences of the types of things also lead to new groups of explanatory knowledge. They must lead to sciences which give account of the deeper structure. The forms and features which we observe are then explained by the elements from which the objects are built up.

**Explanatory
Sciences of
Structure**

Explanatory Sciences of Structure

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We understand the varieties of minerals if we explain them through understanding the elements which enter into them. We explain the characteristics of the plants or of the animals by understanding them as combinations of cells, and those cells as combinations of smaller particles. Yet it is evident that the explanatory sciences of things dealing with the structure and the explanatory sciences of processes dealing with general laws must be completely intertwined. Every new idea as to the structure of things must influence our understanding of the processes and changes which go on in the things, and on the other hand every new insight into the general laws demands new ideas as to the structure of the things for which those laws are valid. The progress in the knowledge of physical and chemical and physiological laws has, therefore, always been also a step forward in the understanding of the structure.

We have so far neglected one science of fundamental importance. All the descriptions of things and changes in the world of things consider the objects with all the richness of their content. It is true, no science looks on the things from every possible side. Each one selects certain features. But their interest is always engaged by some content which our senses perceive. The things are stars or clouds or rocks or trees or snakes or men; and even if our scientific inquiry leads us to their elements, they have a certain color or taste or weight by which they are different from others.

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A new treatment of the world opens itself, if we neglect all these differences of content and do not ask what particular things fill the world but only consider the order in which they are grouped. The content is then neglected and the form alone considered. The most typical account of this way of looking on the world results when we count the things of the universe and order them in accordance with a series of numbers. If I count two apples and then three apples, I find that I have five apples; and yet my interest may now be entirely independent of the fact that I have to deal with apples. What interests me is their twoness and their threeness and their fiveness, and for that purpose it makes no difference whether I take different content and count two eggs and three eggs or two men and three men. In this way I may study the relations which result from counting without any reference to the contents which I count. But I may express the results of such observations in still more general form and deal with quantities in general, using symbols for everything which can be measured at all. The first science we call arithmetic, the second algebra. Finally our formal interest in the order of things may refer to their distances in space and we may count the number of equal parts in these distances. That is, we may measure the lines and angles, and if again we connect the experiences, we are led to geometry. These three chief

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sentative of a group, finding that which is characteristic of all trees of this kind. But we may just as well take this particular tree as part of this particular landscape and study it as a factor in the actual combination of the distribution of plants on the surface of the globe. Or we may study it as a product of its development. If we were to express all such relations of sciences among one another, we should need a whole network of crossing lines.

Yet we ought not to forget that sciences are the product of working individuals and that these divisions and subdivisions are frequently the result of particular interests of special periods or of special countries or of special groups of scholars. The historical development of sciences is, therefore, frequently simply an expression of a division of labor. If groups of facts become especially important, they are often split off as special sciences. The detailed elaboration of such a map is therefore without an end, just as the map of a country might at first give the large cities only and then add the smaller ones and finally the villages and could ultimately add every single farm.

XV

THE PSYCHOLOGICAL SCIENCES.

We have said that sketching the mutual relations of the sciences is like drawing the map of a state. Turning from the physical to the psychological sciences is like going from the map of Texas to that of Rhode Island, from the largest state to the smallest. The system of the physical sciences is most complex and elaborate and embraces sciences which are as far distant from one another as astronomy and bacteriology, geology and mathematics. In the world of psychological sciences there is very little to report and the distances seem small. Yet it may be only a question of the development. It is a matter of course that the psychological sciences should have found a much later development than the physical ones. We saw that the psychological sciences consider the inner life of man as a kind of natural process, deal with inner experiences as objects and analyze man's consciousness from the point of view of a spectator. All this is not the natural attitude toward inner experience. We saw that ordinarily we try to understand the inner

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life, to interpret it and to sympathize with it, to give meaning to it and to evaluate it, but that we do not analyze it and tear it in pieces. We ask for its purposes but not for its causes; we feel it but we do not observe it. This observing and explaining of inner life is artificial and therefore had to come late in the history of mankind. It is essentially a product of recent times.

This is the chief reason why the psychological sciences are still very undeveloped. They are as undeveloped to-day as the sciences of the physical universe were perhaps three hundred years ago. Three hundred years hence the psychological sciences, too, may have such an abundance of subdivisions and wherever to-day we have only a little cluster of problems there may be in the future a full-fledged special scientific doctrine. But to-day the map must be small.

Theoretically of course we might discriminate here, too, the description of the objects themselves, that is, of the various groups of perceptions, mem-

ory ideas, imaginative ideas and abstract ideas, just as we discriminate the minerals and the vegetables and the mammals. And then we should

have as a second division, the descriptions of the mental processes which go on among these ideas, processes of association and attention and inhibition and reaction, and so on, in a way similar to that in which we discriminate the physical and chemical processes. But the science is

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still too undeveloped, and we are accustomed to group all together as descriptive psychology. Yet, this is no better than if we were to group together the physical studies, those of the stars and stones and birds, as physics. We are therefore accustomed to confine our divisions in psychology to animal and human psychology; and in the human psychology we split off the child psychology from that of the adult, and the abnormal psychology from the normal.

The description of these mental objects and processes in animals and men, children and insane, refers only to that which goes on in the minds of individuals. Besides this we have another field, which in the future will probably be much more important and much larger than today: the field of social psychology. Of course, the mental states which appear in the mind of a community or of a nation are also going on in individual personalities.

Social Psychology There is no mental state which lies outside of individuals; but those mental processes which we are accustomed to consider as belonging to the social mind depend upon the cooperation of several individuals. The circle may be small or large; a conversation may need only two; a war may involve millions. But the mental processes of the conversation or of the war, of a religion or of a public reform, of law or of industry, of politics or of public opinion, are all dependent on the working together of many minds.

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If we call the study of the mental processes which demand the cooperation of several individuals social psychology, it is evident that this science has many divisions. Every large cluster of human activities can be described according to its psychological structure in a special division. We may have a social psychology of language and of politics, of economic activity and industrial work, of artistic and scholarly enterprise, of customs and habits, of morals and religions and many another group. For present day science, everything here is only at its beginning, and we may well be satisfied for the purposes of our diagram if we label this whole bundle of future sciences with the common name, social psychology.

If we place all these psychological descriptions in the circumference of our circle, the question arises whether there are again explanatory sciences which are further removed from the real experience of life, and which therefore we ought to place further out in our diagram. If at first, we ask: how we are to explain these processes of the social mind, it is evident that we must answer: by the psychology of the individual. If we are to explain the psychology of a political movement or of a social reform, or of a language, we have first to study the mental acts which go on in the mind of every individual concerned. No one single individual can create a language, but there is no language which goes on outside of individuals. Seen from this point of view we might even go so far as

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to say that the psychology of individuals ought really to find its place, not in the circumference of the circle, but among the explanatory sciences. There is no individual who is not part of society. Society and its members are the real objects of our experience. Every fellow-man we meet comes to us as part of a social group influenced in his thinking and feeling and acting by his family and his friends and by the whole social atmosphere. Accordingly, we may say the only real material in life is that of social psychology, and only if we are to explain the mental processes of society are we led to the psychology of the individual. Yet this would be artificial, while it may be correct, and instead we stick to the traditional way of putting individual and social psychology both among our sciences of experience.

If we do so, we must keep the place of the higher, explanatory studies for physiological psychology and experimental psychology. Both are very mod-

Physiological and Experimental Psychology ern sciences studying the mechanism of the mental life with the means of laboratories and complex apparatus. Experiments are performed on the perceptions and memory and attention and feeling, imagination and will, in the same way in which the physicist experiments on magnetism or heat or electricity. Physiological psychology in particular examines the facts and develops theories as to the relations between the mental processes and the

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changes going on in the brain. It would be wrong to place such a science among the sciences of real description, inasmuch as its chief points are certainly theoretical. The theories concerning the relation of the elements of consciousness to the cells of the brain are no less speculative, but also no less valuable, than the theories of the physicist concerning the molecules and atoms.

On the side of social psychology the explanation leads back to the same physiological psychology; but besides this theory of the individual mental life, we must there acknowledge a very **Sociology** different science, namely, one which inquires into the way in which various minds enter into connection, how they influence one another and how they form associations. These associations may be narrow like those of the family table, or wide like those of the nation, but in any case there must be certain general laws which control this interchange of individual experiences. Such a science of the forms in which the mental life of individuals is connected we call nowadays sociology. The science of sociology is therefore decidedly not identical with social psychology. It rather studies those conditions under which the social psychological processes can go on.

XVI

THE HUMANISTIC SCIENCES.

When we discussed the chief divisions of knowledge, we recognized the demarcation line where objects are separated from subjects. The one is material of awareness, the other expression of a purpose; the one is to be described and explained, the other to be understood and interpreted; the one has quality and quantity, the other has meaning and aim. We have spoken about the sciences of objects, the physical and mental objects. Now we turn to the large region of the purposive life of man.

The base line in our diagram evidently must be filled with those sciences which may give an account of the purposes which we really find in our life. They may be our own purposes or the purposes of our neighbors. All buying and selling, all political and legal and economic and social strife and aim, all stating of truths and all offering of art and literature and religion, yes, every spoken word and every printed sentence, express such meaning which we need to understand. Thus, the account of the purposes really found in our life experience becomes, in scientific form, an

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interpretation of our political and economic and legal and social and linguistic and artistic and scientific and religious actual life. Each of these and many similar groups of human purposes can be expressed in special sciences, and it will be almost a mere question of practical convenience how far we are to subdivide them.

But the expression of purposes which enter into our experience is not confined to our fellow men. The relics of the past approach us with their ex-

pressiveness in a thousand forms. The
The Historical Sciences works of literature and of art, of technique and of practical achievement, the living memories of bygone days speak to our human intentions and attitudes; and these, too, we try to understand. An interpretation of the meaning of the past, as far as it expresses itself in present day relics, belongs therefore with the study of our own civilization. Yet a much larger group of sciences holds our attention when we proceed to those which are not confined to the immediate experience but which interpret that which is given to us by linking it with its history. The true historical treatment of politics or law or art or language or religion always goes far beyond what really enters into our experience. Those actual remainders of the past—documents and visible achievements—are only the material which the historian combines in order to understand the present. History is never a mere collection of objective data. If the historian mere-

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ly had to describe some objective happenings on the surface of the earth, his whole work would better be included in the sphere of the natural sciences. We should describe the movements of human organisms just as the astronomer describes the movements of the stars; but true history does not belong to natural science at all. Those objective events are only starting points for the real undertaking of the historian. He does not seek the explanation of the facts in the way in which the naturalist explains them—by general laws and regularities. Of course he can deal with human history in such a naturalistic way, and study wars and revolutions and historical movements of all kinds, as if they were simply processes in nature which must repeat themselves regularly. But then he is dealing with social psychology and is in the midst of object sciences. Then, the true spirit of history has vanished.

Where real historical understanding is alive, history means—not the description and explanation—but the interpretation of human purposes and the connection of human personalities by their will. A human effort is historically understood only if it is related by its purposes and intentions to other human wills. Agreement and disagreement, love and hate, imitation and suggestion, selfishness and idealism, control the historical life. Whether we have the political or the scientific or the artistic or the religious or the

Historic **Will** **Attitudes**

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legal or the economic life of a community in view, men always take a stand with reference to other men, in sympathy or in opposition, approving or disapproving certain ideas or certain aims or certain views. The historian never needs to leave this sphere of will relations; and that which he seeks are not laws, but are wide, all-embracing will relations. His constant aim is, therefore, to sift the human actions and to seek out those which have been really influential, that is, those which have been linked with a large number of other human wills. A great historical hero or a great thinker is a subject whose will decisions have connected themselves with the purposes and attitudes of millions of other men. The naturalist works toward general laws, but the historian works toward decisive will relations.

The science of history is accordingly divided into as many spheres as there are human activities. In our school knowledge we put the chief emphasis on political history; and there is much justice in it. The political history is, after all, the most fundamental, inasmuch as the state is the most important condition for all the other activities of men. This does not necessarily give the chief importance to the wars and battles, as is too often done, but rather to those developments of constitutional views and constitutional struggles, and to those inner energies which have made the growth and the decay of the nations through thousands of years.

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Of course this political history may be subdivided without limitation. With reference to the time periods, we may speak of ancient, medieval, modern, and recent history, or with regard to countries and nations, the history of Egypt, or Persia, of Assyria, or in modern times, the history of the special European countries; and we might specialize to separate histories of narrow localities.

But political history is certainly only one aspect of the history of civilization. The history of literature, of art, of science, of law, of religion, of language, of industry, and of economics are no less important sciences. Each of them may be further subdivided. We have the history of the English language, or the history of the French language; we have the history of painting and the history of sculpture; and, in a way, it only depends upon the mass of material how far any special branch is to be acknowledged as an independent science. Here is the place for those historical studies which are usually called philology, a study of those texts in which men of the past have expressed their ideas; and here, too, we are accustomed to divide into classical philology or English philology, and so on. The study of the old relics with reference to the civilization of the time is usually called archaeology. However far the subdivisions may go, the common feature of all of them is that their whole right to existence lies in their purposive point of view. These scattered

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facts are to be understood in their meaning as expressions of a will; and the true historian links these intentions of men in that network of intentions which we call civilization.

We have emphasized from the start, however, that our human decisions always involve a number of consequences. If we affirm or deny a statement, we are then bound to affirm or deny certain other statements as well. **Systematic Sciences** Mere ideas may be thought or dismissed without laying any obligation upon us, but as soon as we decide by a yes if we agree or disagree, we accept or refuse a large number of consequences. Now we have said that the whole history of civilization, of state, law, art and so on, consists of will acts. The programme of a party, or the constitution of a state, or a religious creed, or the raising of prices in the market, are to us equally the expression of certain decisions. At any point we may therefore ask: what is involved in these decisions? How far do these volitions demand other volitions? And again, that means that we work out the consequences involved in such human purposes. This gives us a new kind of sciences. Such a set of consequences is what we call a system. Hence we must be dealing here with systematic sciences. For instance, we may study the system of the religion of the old Greeks, or the system of the law of the old Romans, or the system of the language of Russia, or the system of the market relations in the eighteenth century, or

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the system of the political relations of Germany. In short, any group of purposes which become important in the history of mankind in any field of human activity can be made the center of a systematic science.

In some fields, these human purposes and decisions change with every large group of human beings. For instance, the forms of linguistic expression are different for the Russian and the

The Field of Economics German and the Frenchman and the Englishman; and the systems of these linguistic expressions which

we call the grammar of a language are therefore different in every group. On the other hand, certain human purposes, such as the economic ones, laboring and buying and selling, producing and distributing, are to a high degree common to all. Hence, while we have no common system of grammar, nevertheless we can to a certain degree have a common system of economics. But we must not forget that in such sciences very much depends upon the question of which of the human purposes seems to us especially important, and which less decisive. If we emphasized the one or another group of purposes, we might come to very different systems. This is the reason, for example, in the field of economics that different scholars may come to very different results and develop different systems of economics. All claim to be right, and all are right in so far as they develop the real consequences of certain purposes; but they are right

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only in a limited degree in so far as they emphasize some purposes and neglect others.

The greatest interest belongs naturally to those systematic sciences which deal with the purposes of our own civilization. The question here is, not how our laws, or our religion, or our state, historically originated, but what is involved in their demands. Here is the place for the whole theory of jurisprudence, of theology, of constitutional law and political economy and so on. Theology develops all the consequences which are involved in those decisions which characterize our religion. Jurisprudence develops the consequences which follow from the decisions of the existing law; and it makes no difference whether the law is formulated in statutes or in the earlier decisions of the judges. Political economy draws the consequences of certain fundamental decisions concerning the satisfaction of the needs of men.

If we were to show all these graphically in our diagram, we should have three groups: first, the interpretations of the purposive life which surrounds us, secondly the histories of purposive activities, and thirdly the systematizations of purposive life at any stage of history, including our present time. But it is evident that a full interpretation of the purposive life of our time, such as our first group demands, must take, in scientific form, the character of a system, too. The first group and the third group must therefore

Systems and
Histories of
Purposes

us,

purposive activities,

and thirdly the

systematizations of purposive life at

any stage of history, including our

present time.

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necessarily overlap. Hence we greatly simplify our graphic scheme if we include in our first group the systematic presentation of our law, economics, politics, religion, language, and so on, and acknowledge in our diagram only a second group in addition to this. This second group will then include the history of all purposive life—with the understanding that not only a historical narration of the development is involved, but also a systematic interpretation of every historical group of purposes. Thus in the circumference of our circle we have the systems of purposes; and further removed from the circle, the histories of purposes.

XVII

THE PHILOSOPHICAL SCIENCES.

The historical life of man is guided, not only by his practical needs and his desires for advantage and pleasure and joy, but also by his belief in ideals. The scholar who seeks truth, the artist who creates beauty, the reformer who devotes his life to the spreading of morality, the minister who works on earth for the Kingdom of Heaven, concentrate their life work on the service to particular ideals. But in a less concentrated form, everybody submits to ideal duties. Whoever thinks—and it may be the most trivial thought—aims toward truth; and there is no human life in which the desire to be honest and to fulfill the obligations of life is entirely hidden by the mere longing for pleasure and advantage. The true and the beautiful and the good and the holy have some meaning for every human being, however much one or another may prevail in the particular individual.

These ideals are will-acts in ourselves. If they were simply rules and obligations forced on us from without, we could not feel them as our true duties. No; we ourselves really will the true and the beautiful and the good; and yet we should not call them

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obligations, if they were simply individual desires of ours. We therefore have to acknowledge that there are purposes, will acts in us, which are independent of our practical desires. The historian may report how the one or the other person at the one or the other time has tried to realize those ideals, that is, which true thoughts or which beautiful creations or which moral deeds he has put into the world. But the standards, the ideals themselves, are independent of these efforts of approach. They must be understood as purposes common to all and belonging to every subject who shares the world with us.

Hence there must be sciences which connect these obligations which we find in ourselves and interpret their binding demands. Inasmuch as

such demands are norms for us, we call

The Normative Sciences them normative sciences, and by norms we mean demands which are entirely detached from any pleasure or pain.

A norm does not say: if you do that, you will get a reward, and if you do not do it, you will get punishment. No; the norm simply says: you ought to do it; and there it rests. And yet we are real beings only if we experience such demands of norms in ourselves. If we are devoid of any understanding of the true and the good, life itself becomes meaningless.

We can discriminate four chief types of such norms in ourselves. Firstly we have the norms of

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our thinking. They tell us: you ought to think in this way in order to get the truth. They do not promise any advantage from getting the truth; they simply demand that we ought to seek the truth, whenever we think, and therefore they show us the ways in which our thought may reach the truth. These ways of the right kind of thinking are called logical, and the science of logic is accordingly the science which gives us the norms of correct thinking. It is now quite clear how our thinking can be looked on in very different ways. When we spoke of the psychological sciences, we had to include there, of course, our thinking processes. Thinking from the psychological standpoint is simply a mental mechanism, a process which we can describe and explain and from such a standpoint the foolish thoughts of an illogical mind are as interesting and important as the wisest knowledge of a deep thinker. They are simply material for psychological analysis. In the historical sciences, on the other hand, we have to deal with the actual thinking going on in our time and in the past interpreting the efforts of true thinking which have made up the history of human knowledge. But these historical labors of thought must themselves be measured by the demands of logic. The normative science of logic should therefore be clearly separated from the historical appearance of human thought.

At the side of logic we find as the next norma-

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tive science aesthetics. This does not refer to our thinking, but to our feeling. If logic tells us which thoughts we ought to choose in order to avoid error, aesthetics tells us how we ought to view the world in order to avoid ugliness. The principles of art, literature and music must be interpreted; and yet the norms of aesthetics will lead far beyond the domain of art. Life itself ought to be beautiful. The ugliness of strife and disharmony in social life contradicts the aesthetic demands no less than ugliness in outer nature. Aesthetics in its widest sense will therefore comprise beauty of nature and happiness of mind and love and friendship and peace.

Even wider is the field of ethics, if we mean by it that normative science which tells us how we ought to act. It is not only the question of personal honesty and morality; for the action of the state expressed in the laws, and the action of the community expressed in the striving for progress and reform and education and technical development, are no less bound by such ideals of action. The philosophy of law, and the philosophy of progress, and the philosophy of education, are thus necessary parts of ethics in the wider sense of the word. But its chief purpose surely is the understanding of those principles which control our own action, when our actions are chosen as we ought to

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choose them, and that means when we are doing our duty.

The fourth coordinated group refers to the religious norms, the philosophy of religion. It is clear that this again is very different from the science of theology, which we find in the sphere of the historical sciences. Every historical effort of man to conceive God leads to a special theology; but the absolute norms which express how we ought to be faithful in order that the world may get a meaning, in short, the ultimate ideals of holiness, are independent of the historical formulations, just as are the ideals of truth and duty.

These four groups of higher purposive ideals in us are actual experiences. In our diagram they belong in the base line of our triangle. They stand

The Science of Metaphysics and Philosophy on the circumference of the circle of life, as we really feel the obligation to correct acting and honest thinking and harmonious life and religious submission. It is quite different if our thought makes the effort to combine this totality of real obligations in some deeper energy in which our life is embedded. Then we may proceed to speculate far beyond the real experience. The science which tries to bring unity into this manifoldness of truth, beauty, morality and holiness, and to bind them together by some ultimate principle is called *metaphysics*. All these normative sciences may be

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called *philosophy*. The word *philosophy* has covered very different efforts at various times. When first it was used among the old Greeks, it meant essentially any kind of knowledge for knowledge's sake. The artisans need practical knowledge; but if a man was thinking about the world only in order to understand it and thus to get a true view of the world and all that it contained, he was considered a philosopher. We do not now use the word *philosophy* in any such sense. Otherwise, we should have to call *philosophy* all our natural science and mathematics, our historical and economic studies, our biology and our chemistry. And yet there is a very simple connection between the origin or *philosophy* and our present situation.

Philosophy, we said, was at first the whole of theoretical knowledge. But as soon as the mass of known facts became larger and larger, certain groups of studies became independent. They were slowly detached from the whole of philosophical knowledge and themselves became sciences. This process has gone on through two thousand years. What at one time still belonged to that central mass of philosophy at a later time came to belong to independent parts. But the more the number of such sciences increased, the more it became necessary to hold them together by a central science. If they were not bound together, then we should have nothing but scattered information which would never fulfill that high aim which the old Greeks had in mind, the aim toward a real under-

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standing of the world. We should understand odds and ends of reality, but not the whole world in which we live.

But if there can be a central science which brings together all the scattered studies and molds them into a unified view of the world, then it is clear that this central science has really inherited the powers of the old philosophy. Yet such a highest power evidently can belong only to one group of inquiries, namely, the inquiry into the right and wrong of thinking. Every special science must start with a number of statements which are simply accepted, but which cannot be examined in the midst of that particular group of knowledge. The ultimate questions of every doctrine are to be handed over to a special science which decides whether those doctrines have done their work well or not. For this purpose that highest science which is the supreme court of knowledge must examine whether those other sciences have begun with right presuppositions and whether they have gone on in right ways of thinking. But we have seen that exactly this is the role of logic. Logic is then essentially the science which deserves the traditional name of philosophy. But inasmuch as the seeking of truth is only one way of looking on the world, its contrast to the other ways, its relation to the aesthetic and moral and religious attitude, cannot be separated from the philosophical inquiry.

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It is therefore correct to call all these normative sciences, and ultimately metaphysics in which they are held together, philosophy.

We must now add our new results to our diagrammatic picture. We have put into it the classification of physical sciences. We may now add in accordance with the results which we have gained a diagram for the humanistic and philosophical doctrines. The map of the theoretical sciences is in that way completed.

XVIII

THE APPLIED SCIENCES.

We finally come to a very large group of sciences the place for which it is not quite easily determined. It seems as if nothing were left after we have studied the physical and the psychical objects and the purposive life in its historical and in its philosophical aspect. Indeed when we spoke of the chief divisions of knowledge, we made no other separations but these four. And yet we stand before the fact that a large number of sciences exist which do not exactly belong in any of these groups. Let us consider, for instance, the science of engineering or medicine, or the science of practical law or education, or the science of architecture or politics, or any other of the so-called practical sciences which serve the manifold vocations.

We spoke about vocational life before we began the examination of the sciences. We said that the vocational life involves much more than mere knowledge. We said that in addition to knowing there must be the ability to do things. Work must be done and technique must be learned. But above all, we insisted that even the ability to do in addition to the knowledge does not constitute a vocational life. What is essential is the adjustment of knowledge and practice to a human purpose. A

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need is felt which is to be satisfied. Vocation makes use of the knowledge in the interest of ends which are appreciated and chosen.

At the first glance it looks as if we were at the point of denying all this, if we now simply want to bring all these practical vocational activities back into the realm of knowledge. But

Knowledge for Vocational Ends let us discriminate very clearly.

We do not withdraw any of our previous statements. The vocation of the physician is indeed

much more than knowledge of biology and pathology; the vocation of the engineer is more than knowledge of physics; the vocation of the lawyer is more than knowledge of the valid law. To become a vocational activity, this knowledge must in every case be submitted to a special chosen end. But all this does not contradict the other fact that this choosing of ends together with making use of the knowledge for that end is itself a group of facts which can be studied and which therefore becomes an object of science. The facts which applied sciences like engineering and hundreds of others are studying are therefore facts which result from a combination of two things; on the one side, some theoretical science, on the other, some purposive activity. But this whole combination of purpose and science is something which evidently is very fit material for special groups of sciences. The science of engineering for example, is the science which

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shows how the facts of physics or chemistry become serviceable to certain purposes of man.

It is evident that these applied sciences then have intimate relations in two directions. They belong on the one side together with these theoretical sci-

Classification of the Applied Sciences ences which are applied, and on the other side they belong to the study of those purposes which control the application. Either kind of grouping would be entirely possible. If we

were to choose the first, then we should put the applied sciences in our map with the theoretical subjects which are made serviceable to the human ends. The science of mining, for instance, would become attached to mineralogy and geology; the science of hygiene would belong with biology and pathology; the science of mechanical engineering would become an appendix to physics. In this way every single science would have its own side branch of practical application.

This arrangement would not be confined to the physical sciences. If we dealt with the psychological sciences, we should then ask in the same way: how can they be made useful to human purposes? The applied psychology serving the purposes of education or law or industry, or as psychotherapy serving the purposes of medicine, would then be affiliated with psychology itself. In a similar way the historic sciences, both systematic and strictly historical, would have their practical department also. The system of economics would have its practical

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application in the science of practical economic reform; the systematic science of theology would be made serviceable to the practical studies of the divinity student; the systematic study of law would be expanded into the study of legal practice. Finally philosophical sciences would have their practical application elaborated in the science of scholarly methods, artistic creation and so on.

Yet, if we come to a more careful analysis, we soon find that such an arrangement would be somewhat one-sided. The particular purposes for which the sciences are applied would be neglected. Moreover, the vocations show—and we shall later study this carefully—that the fulfilment of a human purpose usually needs different kinds of knowledge and different sorts of sciences. The applied sciences should be grouped and classified quite differently from the theoretical ones. Any theoretical doctrine may enter into very many practical sciences, serving different practical ends. The science of chemistry may be important for the agriculturist, the miner, the manufacturer, the druggist, the student of domestic sciences, and hundreds of others who have very different purposes. On the other hand, many different sciences may have to co-operate in the service of one special end. To serve the purposes of the physician, physics and chemistry, botany and zoology, physiology and pathology and anatomy must be combined. In short, we cannot bring any order into the applied sciences if we simply group them in accordance with the theoretical sub-

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the ability to practise it successfully. This situation repeats itself in every single vocation, and we now turn first to that second fundamental factor besides knowledge—the ability to do the work.

XIX

OTHER CLASSIFICATIONS.

Before we leave the realm of knowledge, only one word should still be added with regard to the fundamental principle of our classification. We must

Purpose counteract the possible misunderstanding that we have presented our of division and subdivision of the field Classification of knowledge as the only justifiable one. This is not at all the intention.

Classifications are not true or untrue. They can only be more or less useful for the purposes of knowledge. Classifications are not given by reality itself. We classify the realities in order to master them. We therefore group them in accordance with special interests and from certain standpoints. If we change the point of view, or if, for a certain inquiry, we have a different purpose in mind, we must classify the material in a different way. A classification which may be ideal from the point of view of the theory of knowledge may be less satisfactory for certain practical purposes or from the standpoint of a special science which looks on everything from its own point of view, just as man looks into the cosmic universe from the standpoint of the earth.

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For us there was no choice. We wanted to understand knowledge in its contrast to the other attitudes toward life experience, contrasting knowledge with will-activity and with feeling-interest. Then we had to develop the whole system of classification from the idea of life experience under the point of view of thinking about it. The various groups of knowledge were thus related for us to the various spheres of human experience as such. But it is evident that if the aim is simply to bring order into the existing sciences, this reference to the human experience might be entirely disregarded, and very different classifications can therefore be defended.

The effort to bring such order into the whole manifoldness of knowledge has interested philosophers of all times. As the philosopher has to deal with the meaning of truth and the methods of logical thinking, the systematic classification of knowledge is indeed a legitimate philosophical problem. And it is a problem of greatest importance, as new philosophical principles of classification have often shown the way for new scientific discoveries. Plato and Aristotle, Bacon and Locke, Bentham and Ampere, Kant and Hegel, Comte and Spencer and many philosophers after them have discussed this problem most seriously, and their classifications have usually been expressions of their whole view of the universe. Among the old Greeks no classification was more

History of
Classification
of the
Sciences

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influential than the Platonic one which referred all sciences of that time to the three mental powers of reason, perception and desire, and called the corresponding sciences dialectics, physics and ethics.

On the threshold of modern times, Bacon divided the intellectual globe into three large parts, according to the three fundamental psychical faculties,

Bacon's Classification memory, imagination and reason. The memory gave us history, the imagination poetry, the reason philosophy and the sciences. History was further divided into natural and civil history. Natural history contained the normal, abnormal and artificial phenomena; civil history contained the political, literary and the ecclesiastical facts. The field of reason was subdivided into man, nature and God. The domain of man gave first civil philosophy, parted off into intercourse, business and government, and secondly philosophy of humanity, divided into that of body and of soul. Medicine and athletics belonged to the body, logic and ethics to the soul. Nature was divided into speculative and applied science, the speculative containing both physics and metaphysics, the applied mechanics and magic.

Bacon's system represented the science of a time which had hardly started a real study of nature. The triumphal development of natural science belongs to the centuries after him. The most influential systems of modern times have usually over emphasized these natural sciences, while others of

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great philosophical depth have put the emphasis on history.

One of the most original efforts was that of Comte, who did not ask how the field was to be subdivided into coordinated parts, but rather asked how far the various sciences depended upon one another, that is, how far one is logically subordinate to another. In this way it must be possible to work out a system of superimposed layers. He argued in this way: All our moral life is dependent upon the forms of our society and the forms of society are dependent upon the individual, human organisms. But the life of the organism is dependent upon chemical actions and these finally are dependent upon physics. In this way we find that the science of morals is dependent upon the science of sociology, sociology again upon biology, biology dependent upon chemistry and chemistry upon physics. But the physical processes on earth are dependent upon the whole universe and therefore upon astronomy. But astronomic processes are dependent upon mathematical relations. Therefore physics depends upon astronomy and astronomy upon mathematics. Thus we have one straight series from morals through sociology and biology to physics, chemistry, astronomy and mathematics. The mathematical facts are the facts upon which everything in the universe depends. The astronomical facts result from them, and so on down the series.

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The most immediate objection to such a system would be, of course, that it does not do justice to the higher human interests. All the mental and moral sciences,—history and philology, jurisprudence and theology, and economics and politics,—are simply considered as dealing with functions of the human being; but as the human being itself is only considered as a living organism, this whole view of human life interest and of the humanistic and moral sciences is a very low, materialistic one. By principle, all the humanistic sciences become only chapters of biology.

Yet the value of such an arrangement in a single direction is evident; and it is furthermore clear that the principle of Comte may be developed in such a way that the humanistic and philosophical sciences come to a fairer position. We may simply say that as soon as we come to man, that which is dependent upon the existence of man is to be approached with a different kind of interest. The descriptive interest must yield to the interpretative one. Then again we may begin with mathematics, going down to astronomy, geology, geography, physics, chemistry, biology, anthropology. Down to this point we give a description of the material universe. Now, in anthropology, we deal with Man, and may turn to those sciences the material of which depends upon man, just as man depended upon the laws of chemistry and physics. But the realities which depend upon man must be

Improvement Over Comte

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looked upon from the point of interest in their meanings. Thus we come to language, history, politics, economics, art, literature, education, then to the social behavior of man in sociology, and finally to the striving of man toward ideals in logic, ethics, aesthetics and metaphysics. In this way we have from mathematics to philosophy—one straight development in which the material of each science is considered as conditioning the material of the next.

It has been proposed to present this scheme graphically in such a way that not only this relation of mutual dependence is symbolized, but also the arising of one from another. For this purpose the most suggestive, graphic form is certainly that of the spiral; and so we come to a diagram of spiral form in which mathematics is nearest the center and philosophy furthest removed. This is a graphic representation which has recently been recommended and which is full of suggestion for the organization of studies. It is certainly in no way contradictory to the more theoretical classification which we have carried out and which we must uphold throughout our book, if we are to correlate the knowledge aspect of life experience with the will aspect and the feeling aspect and to combine all three in the unity of the vocation.

PART III—WORK.

XX

THE CHIEF TYPES OF ACTIVITY.

Whatever our life work may be, humble or high, mere knowledge cannot be sufficient for it. A vocation, or any occupation, aims toward the satisfaction of human needs; and this satisfaction can be brought about only by changing something in the world, no matter whether the change is simply to warm milk on the stove, or to hammer iron on the anvil, or to cut an appendix out of a patient, or to convince a jury of the innocence of a defendant. To bring about such a change is the purpose of every will activity. There is no occupation which does not demand one or another kind of will; and while this acting may and must be guided by knowledge, it is in itself no knowledge. We may say that we know how to act. Yet it is not our knowledge of how to act which makes us fit to go through the performance. To know how to act means to have learned the act itself, and no one can learn swimming except in the water.

Let us consider the whole richness of possible will activities which may enter into useful human life

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other beings, or to the physical world, and this may be the organic or the inorganic world. If I try to

Classification by Purposes train my memory or my imagination, the whole effort is directed toward a change in my own personal powers.

On the other hand, if I train myself in making conversation or in writing letters or in municipal administration, the effort of my activities refers to my relation to other men. If I learn to cure a patient or to breed cattle, my aim belongs to the organic sphere. Finally, if I learn to build a bridge or to handle a machine, the changes at which I aim refer to the surrounding inorganic, outer world. I have therefore four large groups: Personal Aims, Social Aims, Organic Aims, and Technical Aims.

Here too, of course, we have a manifold overlapping. What serves the social aims may at the same time work as an improvement of our own personality and still more that which is in one way a technical aim, a change in the outer world, may likewise have a social importance. Moreover, it is clear that here, too, not a few human purposive activities may be counted in one group as well as in another, and that sometimes activities which are very similar ought to be separated by being counted under different groups. For instance, the art of reading involves an activity which has a personal aim, inasmuch as the change which we effect is an enrichment of our own personality. We do not influence anyone else by our ability to read. The change is

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confined to our inner world. Yet inasmuch as that which we are reading is the expression of another personality, reading evidently stands in a most intimate relation to our social aims. On the other hand, the power of writing belongs fundamentally to the social aims, as we write in order to influence other persons, to inform them or to persuade them. But here again writing may have its strictly personal side, and come in question as an activity for the purpose of helping our own memory or making our impressions clearer by writing them down. Many activities which belong in one group on account of their chief function may belong to another by a secondary more or less accidental function. Yet for a general survey, our principle of classification seems to be the best possible, and it may help us to bring a certain order into the abundance of human volitional life.

We may now turn to some further subdivisions of the three groups, but as a matter of course such subdividing is unlimited and no more than a few chief classes can be mentioned.

XXI

PERSONAL AIMS.

We wish now to speak of activities serving personal aims when the change to be brought about lies in ourselves. In a way it is the most important group of activities which man needs for his serious life-work; and if he is to be proficient in any occupation, he needs a training in these abilities of the personal group.

Perhaps we naturally think first of our physical personality. Our learning and training would then refer to our power in the control of our muscular system and those activities which improve, not only our ability to use the muscles, but also our strength through physical exercise and gymnastics. To be sure skill and exactitude in the use of our bodies are at the same time an essential part of all our technical training. If we learn carpentry in order to change the wood and to make it serviceable to our technical ends, the control of our arms and hands is steadily improved; but just for this reason we may learn carpentry even without interest in the mastery of the wood and with the final aim of training ourselves in the control of our body. In that case, it becomes real manual training, and as such, would belong decid-

Our Physical Personality

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edly, not to our group of technical aims, but to our first group of personal aims. If we exercise by throwing a ball, it is quite evident that the change we produce in the outer world by changing the position of the ball is entirely insignificant. Our aim is the proficiency in our bodily functions. If it comes to activities like swimming or horseback riding, it may be still more doubtful whether the purpose is the development of our body or the ability to master nature. For the cowboy the horse is a part of the surrounding world which he must handle as the engineer handles his engine. He who swims may need that activity to save a life. Yet, on the whole, we may still classify all these under the category of sport serving the finest possible development of the organism.

It might not be improper to bring even functions like singing into this group; and yet it is evident that singing stands nearer to the playing of musical instruments—which is obviously producing a change in the physical surroundings, making the piano or the violin resound. From this point of view, in singing it is the surrounding air which is made to vibrate and on which the muscles of our vocal cord are working in order to produce this sounding air movement. Much more important however is the ability to have an accurate, delicate control of the will for those activities which enter into the ordinary practices of life, from the infant's grasping and sitting and walking to the most complex skill of the adult worker or musician.

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But in any case, are we not inconsistent in placing these bodily activities here among the personal aims? Do they not belong to the sphere of organic aims as our body is an organism? This objection is fully justified; and yet we are emphasizing the more important side, if we insist that the development of our control over our muscle system cannot be separated from the control of our mind.

Psychologists become more and more convinced of this. Whenever we are thinking, our ideas tend toward action. If we hear a word spoken or see a

Ideas Tend Toward Action word printed, we have the tendency to speak it. Now the educated man has learned to overcome this desire and does not really speak aloud when he is reading, but nevertheless the impulse starts in the brain. If we see something before us, our eyes move in that direction. We follow any moving object with our eyes. In the same way we have impulses to such actions of our eyes, impulses to movements, whenever we remember or imagine visual scenes. Correspondingly, when we hear a sound we have an impulse to turn toward the source of the sound. If we have before our mind anything rhythmical, the idea turns into rhythmical movements of our body. If we hear music, we make muscular contractions in the same rhythm. This is the reason it is so easy to march or to dance to music. If we give our attention to any part of our surroundings, our whole body enters into motor activity, our breathing changes, the muscles in our

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sense organs contract, our neck and our back become stiffened. If a thing is disagreeable to us, our feeling leads to an action of repulsion. In short, there is no inner experience which is not most intimately connected with motor action and muscle contraction in our body. All these muscle contractions have their origin in our brain. If our brain does not work, for instance, if we are fainting, if the blood vessels of our brain are contracted so that the brain cells lose the blood which they need for work, then we collapse, and that means that the muscles which keep us standing no longer perform their work.

In view of modern science this brain activity which makes the muscles work is itself a part of that process in the brain which gives us our ideas. If we see or hear or touch or feel, our sense impressions reach the brain. There they awake mental impressions and at the same time those motor impulses of bodily response. The impulse to a special muscle contraction thus belongs from the start to the idea itself in our brain system. If we do not develop well these motor impulses, neither can we develop the ideas. Any training in the subtle discrimination of those bodily responses becomes a means for the final growth of our inner life. Many a child whose mind seemed feeble and backward has been brought to a healthier development of the inner life by a course in learning a strict control of the bodily movements. Any discipline and any exercise, any training in sitting quietly and in sup-

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pressing unfit or unmannerly movements works toward a better discipline of mental life.

The first group of activities in the class of voluntary functions for personal aims is thus made up of bodily activities. We contrast with this the mental

Mental Activities effort and just as on the bodily side, we can discriminate the more general and the more specific activities. But here at once a problem arises. If we speak of attending and remembering, learning and imagining, inventing, thinking and so on, have we really a right to class these mental states among the real activities? Have we not there a simple play of ideas without any acting and without any will? First, let us consider a little more carefully what, after all, constitutes a will activity. May we not say that we have a volitional act whenever a change going on in us is of such a kind that we have held in mind the end before it was reached? If I try to solve a problem, and I think about it and turn my attention to it until finally the solution comes to my mind, I have a right to speak of a will activity, because the idea of this solution was from the start before my mind. It is true, I had not the solution itself in my consciousness. Otherwise it would not have been necessary to seek for it. But the finding of the solution was my conscious end.

If that solution had come into my mind without my desire to find it, if it had simply come to me like a dream, I should have said that it was not my act, that it was an involuntary event. But as this final

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end was kept in my mind beforehand, I call it just as much a will act as when my feet carry me to the street which I want to reach. You might say that

after all it is not my doing, because

Mental vs. I do not know how I reach that solution.

Physical This is quite true. But with equal justice I might say the same about my Will Acts reaching the street where I have to do

my errand. I have in my mind only the location of the street. I do not know which muscles are necessary to put my legs and feet into motion. I do not know how my idea of the street contracts the muscles of my legs. I know only that I have the idea of reaching the street, and that my body is doing its share under the influence of that idea and bringing me to my goal. If I had not thought of the street beforehand but in strolling through the town should have found myself there, I should not have called my going to that street a voluntary act. I should have said that I arrived there by chance, not by effort and intention. Whether we have to do with such physical actions of walking or with inner movements of thought, it is this thinking of the end beforehand which separates the will activities from all the other changes which go on in us. If an idea comes to the mind of the dreamer, it is an involuntary happening, but if the scholar finds the idea which he is seeking, it is a will act. All serious thinking is controlled by holding the idea of the end in mind beforehand.

Exactly the same is true of the inventor. It

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makes no difference whether his invention refers to a method in mathematics, to a geometrical problem, or whether it is the idea of a new airship, the final end must somehow from the start be in his active mind. And so it is with the artist. The ways in which this end is reached are still more vague and unaccountable to him; but through all the mysteries of his inspiration, it holds true that the idea of the statue which he forms or the symphony which he composes or of the drama which he writes, must have been somehow before his mind; and only because the final end corresponds to his idea has he the right to call the work his own real production. The whole aesthetic work is the product of his will activity. If he had not had the plan before his mind, he would not feel it as his work at all; it would be an accident and not an intentional creation.

But if this is true of the great mental movements of artistic or scholarly or inventive production, it holds no less for the simplest and most trivial mental product. If I move from any statement to its consequences, I proceed by a will act, and this will activity must be learned, just as any other action is learned. I must have training in it, just as in skating or swimming or playing base-ball. To think accurately, to draw the right conclusions, to reach what is really involved in the facts, is an ability which cannot be gained by a mere learning by heart, as if I were learning dates and names; it is a skill in action which demands a kind of training

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that is entirely different from all mere learning of matters of knowledge.

Another type of such intentional activity is represented by remembering. If I am to recite a poem or to play a role which I have learned, or to make a speech the arguments of which I have thought out beforehand, I must have the ability to bring forward the lines of the poem or the thoughts of the speech in right order at the right moment. This, again, is an ability and a will activity which has nothing to do with knowledge, but which must be definitely acquired. Of course, by principle, it makes no difference whether we have to remember simply the French translation of an English word or the names of our customers. In all cases we call the activity of reproducing such memory-material "will," because the end, the remembering, is really held in mind beforehand. We try to bring that material to our consciousness. It does not come to our mind unexpectedly. The material which we are to learn belongs to our knowledge, but the power of learning the material and of producing it when learned at any time we need it, is not knowledge but work, action.

It is important to notice that the same is also true even for the simplest act of attending and observing. Attention is that change by which the object of our attention becomes clearer and more distinct and more vivid. The idea of the object to which we are attending is in our minds beforehand,

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and attention is only a transition to a state of fuller acquaintance with the same object. Observation is then only a special case of attention. If we observe an animal, we must have Attending in mind beforehand the idea of the and Observing fullest possible detail of the creature, a detail which we do not discriminate as long as we are inattentive. The action of passing over to a real awareness of all the small features and holding them firmly before the mind, thus becomes a fulfillment of the intention; and for this reason, the act of observing, too, is a real will activity. If we consider the human actions which are to be learned for efficient life work and which demand ability and training, the whole series of mental processes—from attending to remembering, thinking, imagining, inventing—certainly have the right to the foremost role. They enter into every occupation; they are of importance for every human being.

No sharp demarcation lines are found between such general activities and those which are adjusted to special, definite purposes. The student of Measurements nature, for instance, must not only attentively observe the surroundings, but must make exact measurements and experiments. Such and Experiments a measurement does not change anything in the surrounding nature. Hence it does not belong to the technical aims. Nature, whether measured or unmeasured, remains the same. Only the observer

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becomes changed, inasmuch as he gets deeper and better information through his measurements than he would get by mere observation through his senses. But ultimately, the same may be said concerning experiments. Of course the experimenter often needs a complex technique and has to handle his apparatus; and from that point of view it looks as if there, at least, we have a technical aim before us. But the principle is in reality no different from that of mere observation. The physicist or chemist or physiologist who makes his experimental studies does not do it in order to change outer things, in order to use them. His real purpose is the study of the events. Experimenting means observation under artificial conditions specially introduced for the purpose of the observation. The final aim of the experiment thus remains the better information of the student. The fact that these studies can later be used for practical purposes is not characteristic of the experiments themselves.

By far the most important group of specialized activities with personal aim is that of Reading. Here, again, we do not change anything in the world but our own mind when we are **Reading** reading. The newspaper or the book itself is not influenced by our understanding of the words, but our mind becomes enriched by the new information. Further, reading means more than the ability which the child in the first grade of the primary school acquires. To have learned slowly to decipher word after word can be

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only the beginning of the ability to read. The trained reader reads at a glance several lines in the time in which the child masters a few syllables. Moreover, the true power of reading involves the ability to concentrate the attention on what the eyes are seeing, on the written or the printed page, and to awake quickly in memory all the ideas which are connected with the printed words. At every new stage of maturity and of intellectual development new abilities of reading must be acquired; there is no end and no final graduation from this school of reading, which has to go on through life.

The art of Calculation belongs to the same group. We do not change the things of the world if we add them and subtract them, multiply them and divide them. All that we reach through Calculation such activity is a new power over the things, a new possibility of our personal adjustment to them. It is a means for knowing our own practical situation. To say it trivially, if we have received a sum of money and spent a certain amount, our subtraction does not bring more or less into our pocket, but it lets us know how much we still have to spend. Every calculation furnishes us in this way with helpful information and the result refers entirely to our own comfort, however much we may put this ability into the service of social or technical ends. But the decisive point is that such calculation, too, is really an action, a doing, and not simply a learning. The proofs of mathematics can be demonstrated and we can learn

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them like any other knowledge. But the ability to prove anything in mathematics, or to invent the solution of a problem, to find a square root, to multiply two figures or to divide them orally—is an art, as against mere knowledge. It must be practiced just as piano playing is practiced. We cannot emphasize strongly enough this fundamental difference: that knowledge can be gained by receiving descriptions and explanations and interpretations, but that activity can be learned and mastered only by practical exercise and systematic training.

XXII

THE SOCIAL AIMS.

Our activities are controlled by social aims when the immediate purpose is not a change in our own mind but the influence on the minds of our fellow-men. The most fundamental activity Speaking of the social group is, of course, the function of Speaking. Modern psychology has demonstrated that the child does not begin speaking in an effort to tell things, but in a desire to express feelings and wishes. Yet from the threshold of life it is a social function, as these feelings also find their language-form only if they are to be communicated to others. Of speaking, it is truer still than of reading, that the schoolboy's power and ability ought to be only the beginning of an unlimited development. He must be trained in facility of expression in every school hour; and yet only the social life of later years can bring the technical language to any degree of perfection. Moreover, facility and correctness of grammar are the most superficial parts of the virtues of speech. The richness of the vocabulary, the beauty of the well-turned sentence, the clearness of the diction, the subtle fineness of the choice of the right words, the convincing grouping of the arguments, the forcible style—all can be gained only by long practice

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and incessant effort, however highly a natural gift may endow one or another student.

The simple art of speaking needed for all social intercourse, shades off into many specialized activities. The fine art of brilliant conversation for social entertainment is very different from the art of political or legal oratory, or from the minister's sermon, or from the teacher's clear presentation of the lesson by the spoken word. Every one of these forms of expression demands an activity for which mere knowledge and good will are insufficient. Practice and training, following the advice of those who are better trained, imitating great models and overcoming difficulties by new and ever new practical efforts alone can enable the scholar to reach the goal.

All of this is reflected once more in the art of Writing, where the mere technique of producing the written letters is only the outside of this most important means of social intercourse.

Writing Still, even this external form demands incessant practice. It is only a variation of this writing ability if the shorthand form, with its time-saving rapidity, is substituted for the slower methods of ordinary longhand writing. Correspondingly, it is only a new variety of the expression if the writing is performed by mechanical devices and the typewriting machine is used instead of the fountain pen. More important than the mastery of these technical means for self-expression, is the ability to compose the written text. There is

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a continuous line from the simplest letter written to a friend in the country up to the big manuscript of an author written for unknown millions of readers. It is not sufficient to know one's subject in order to write about it in the most efficient way socially. Literary composition is an art in itself which is also characteristically different from the art of speaking. The written compositions in school are not only a test of ideas and thoughts but constitute a most necessary training in an activity of mind which demands most subtle exercise.

That kind of writing which sets literary purposes for itself is only a special class of the functions of written self-expression. Nevertheless it does immediately lead to other artistic forms of self-manifestation. The picture, for instance, whether the child's clumsy sketch of the teacher or the painter's masterly landscape painting, certainly has a technical aim, inasmuch as the paper or the canvas are changed, and it has a personal aim, inasmuch as it serves the satisfaction of the draftsman's own imagination; but still it has fundamentally a social aim. It tries to make fellowmen see the things with the eyes of the artist. It sketches to them his peculiar view, just as a lyric poem forces on the reader the poet's view of love, and spring, and life. In the same way the composer chooses his written music as the means to reach other human minds, to speak to them in his peculiar, wonderful language of tones and to

THE SOCIAL AIMS

communicate to them the richness of his soul. Drawing and writing poetry and composing music are thus forms of self-expression like speaking and ordinary writing; all are held together by the social aim and all are will activities.

We are turning to a new group when we consider those specialized activities by which social relations are constituted for definite purposes.

Administration Typical here is the work of Administration. To handle men, to put each in the right place and to adjust their co-operation in the service of a common end is a task which society needs in a thousand forms. It is an activity which certainly requires knowledge; and yet it is essentially an ability controlled by judgment and tact and instinct and developed through systematic training. But if the function of administration belongs primarily to the leader, the virtues of the other members of the team are no less definite activities which require practice. To fulfill the given order, to follow the leader, to subordinate oneself without giving up initiative, to show the obedience of the soldier and yet retain independence of character, to be a good clerk and yet not to be an unthinking machine—require activities with social aim which demand a special learning and training.

Every profession likewise demands groups of behavior and of social activities which must be superadded to the mere knowledge which the vocation demands. The teacher must learn how to

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meet a class and how to respond to the situations of school life. The mere knowledge of the lesson and even the most profound scholarship can never be substituted for this fine art of **Professional Activities** dealing with children. The lawyer and the physician must know how to handle their clients. The commercial traveler and the clerk in the store and every saleswoman must learn a specific group of activities, the mastery of which demands a characteristic skill and technique. Even when the mother deals with her children, motherly love alone would not be sufficient to make her act as she may wish, in later years, to have acted, while her children were still young.

Every one of these specific, more or less professional activities can be resolved into simple psychological processes. But every one of these elementary functions is an activity which has **Social Efficiency** to be learned. The power on the one hand to suggest one's idea to others, or to inspire fellowmen, or to convince them, or to persuade them, or to make an impression on them, or to give an effective order to them, or to attack their weak points, or to stimulate their energies; on the other hand, the power to express oneself clearly or sympathetically, or to imitate others correctly, and many similar abilities, are all characteristic parts of the social activities. Yet each in itself is a complex process. In popular psychology we may speak of suggestion or obe-

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dience or imitation, as if the simple word covered a simple mental process, but in scientific psychology we recognize that there is not a simple power of suggestion or a simple faculty of imitation; but that every single act of suggestion or imitating or obeying and so on, results from the cooperation of very many simpler mental elements. But however far our analysis of this may proceed, we always find as the ultimate feature, a certain effort to make real an idea before our minds. This realization of an idea which is beforehand in our consciousness gives to the complex state the character of will activity; and to be efficient in such realization is an ability of the mind and brain which is not inherent, but simply has to be learned by training. No one is born with it, and no one has acquired it by mere expansion of "knowledge." We have all to learn by practice how to make ourselves socially efficient, and without this ability we cannot usefully fill a place in our social community.

XXIII

ORGANIC AND TECHNICAL AIMS.

We are now to consider those aims in which the will activities are controlled by the intention to produce a change in the physical world. He who writes a letter brings about such a change when his ink is flowing; and yet his effort is so completely controlled by the intention of influencing the mind of the receiver that the mere technical process of writing can be subordinated to the social process of communication. On the other hand, he who performs a distinctly technical act—such as manufacturing a chair or tailoring a gown—does not detach this from a certain social aim which accompanies it. He does not do his carpenter's or his tailor's work in order that one more chair or one more gown may exist in the physical world, but rather to attract by it some person who may need a gown or a chair. A reference to the social aim is thus always indirectly involved in a technical activity. Still, as we put the emphasis in writing a letter on the social side, and subordinate to it the technical side, we are also justified in putting the emphasis on the technical side in the case of the carpentering, subordinating to it the social interest. As soon as we come to the study of Vocations and Occupations, we shall have to bring out the

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correct relation between the technical and the social sides.

Thus, for the classification of human activities, we can stick to our definition and we may bring together in this one group all activities that aim directly toward change in the outer world. But it seems natural from the start to separate these into two large classes.

The changes which we produce in the outer world may refer to Nature's work or to Man's work. It is a fundamentally different thing whether the physician repairs a broken bone

Organic vs. or whether the engineer repairs
Technical Aims a locomotive. Of course man's work is nature's work, too. Man is himself a part of nature, and above all man cannot create any new material; he can only combine it in new arrangements. But these new arrangements of natural substance adjusted to the purposes of man are so characteristically different from the immediate products of nature that such a separation of aims strongly suggests itself. The aims referring to the man-made world are those which are usually called technical, while those which refer to nature itself are essentially those dealing with the organic products of nature—with the organisms of plants and animals and human beings. Hence, we have "organic aims" and "technical aims."

Yet it is clear that here, too, the grouping must often depend upon the arbitrary decision, whether

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we are to put emphasis more on the one or the other side. The druggist who prepares a chemical substance as medicine for a patient is doing a technical work if we emphasize the chemical aspect of combining the drugs; and yet he is serving an organic aim, if we put the emphasis on the change which the drug is to produce in the organism of the sick man. Or, to point to the destructive side of life efforts—the soldier who learns to shoot is in the midst of a technical activity if we put the weight on the physical mechanism of his gun, while he is engaging in an organic activity if instead we consider his intention to kill the enemy.

The activities which aim toward changing the organic world refer to plants, to animals and to men. There, man is in question not as a personality, but as a physiological organism.

Organic Aims Plenty of activities have reference to both aspects of human life; but while in practical situations those various activities are intertwined, it is not impossible to recognize the different aims, as soon as we begin to analyze them. The mother certainly approaches, and ought to approach, her children with all the warmth of a personal relation. The children are subjects of will to her, young persons who are to be understood and whose intentions are to be interpreted. But at the same time those children are organic beings whose functions should be watched, and even their mental life, their behavior, with its tendencies and its defects, can and must be under-

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stood as dependent upon the organism and its nervous system. A wise mother will never entirely neglect one point of view in favor of the other. The same holds true for every teacher.

The activities serving the organic needs of man, the needs of the normal and of the abnormal body, the activities of nourishing the organism, of protecting it through the means of hygiene, of strengthening it and especially of curing and nourishing it, stand in the foreground. As far as animals are concerned, the veterinary work, the treatment of the diseased animal, is only secondary to the whole normal animal husbandry. To improve the herds, to breed new types of cattle, to handle horses, sheep and swine, to feed the farm livestock and to milk the cows, all demand a certain knowledge and theory, but are essentially activities which must be learned as such. The same holds true for the agricultural and agronomic activities and finally for those of the floriculturist and horticulturist. Their knowledge of botany, and plant physiology or plant pathology, is in itself no substitute for the practical abilities which are demanded in the farm, garden, or forest work. The work of the landscape gardener or of the entomologist bind together still more complex groups of interests. Everywhere man is selecting, improving, preserving, destroying, in short, changing the given organic nature in the interest of his purposes —under the guidance of knowledge, but with a special technique which cannot be simply taken at

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a matter of course. This special technique must be learned, just as knowledge is learned, if mastery is to be reached.

Still wider and larger is the field of the technical achievements. We may think of the civil engineer who constructs bridges and tunnels, harbors and docks, railways and gas works, manufacturing plants and buildings, the mechanical engineer who designs and builds engines and machinery, the electrical engineer who arranges light plants and dynamos, cables and telephones, or the mining engineer who roasts and smelts and mills and stamps and concentrates the ores, and plans and ventilates the mines. An abundant knowledge of mathematics and physics and chemistry must be at their disposal; and yet what they have to do demands a power of realizing the intentions and therefore an ability for technical action which can never be learned from mere text-book knowledge.

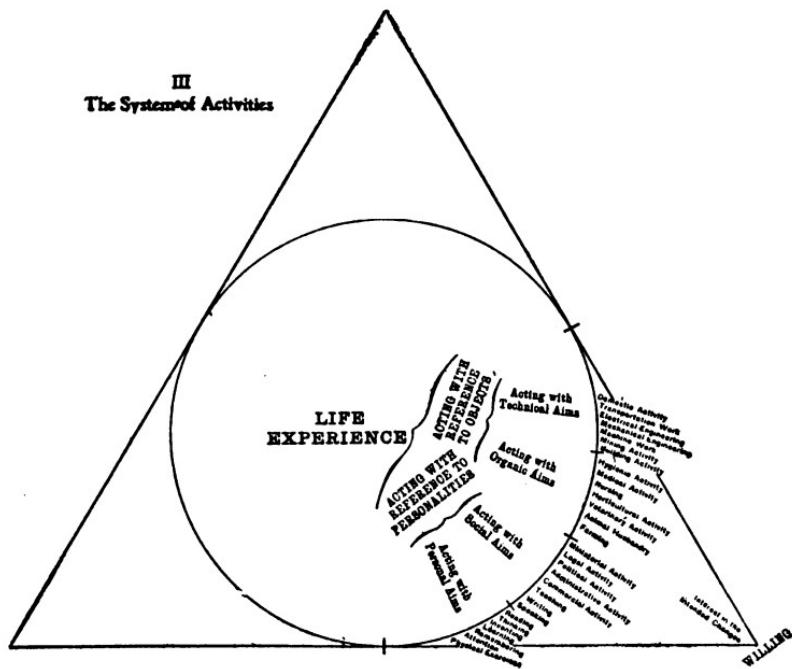
In principle, such complex work of the scholarly engineer is not different from the simple activity of the carpenter and of the blacksmith and of the shoemaker. Even the cook and the laundress each work, in their elementary fashion, on the same principle on which the man of science proceeds. A change in the world is produced by one who not only theoretically knows the conditions under which such a change may be expected, but also knows practically how to do it—how to wash the shirt and how to prepare the soup. In all handling

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of tools, in all digging and mining, in all transportation work by land or by sea, in all work with chemicals and with machines, such practical training is demanded. Here also is the place to mention the mastery of musical instruments.

We must return to all these technical achievements in some detail as soon as we begin to analyze the needs of the various vocations and the methods of becoming proficient in the various studies. So far we have had no other aim than to gain a general survey of the whole manifoldness of human endeavors and to separate them cleanly and clearly from all mere knowledge as such. If we are to make an entry for them in our diagram, we already know the place which this element of the vocations has to fill. We need to indicate that all life-work is recognized just as soon as we look on life under the point of view of "producing changes"—that is, with the interest in act of doing. We expressed it, first, in showing how in the midst of the circle of life, all life experience presents itself as activity. This activity appears as directed toward four aims: personal, social, organic and technical. In our diagram we would therefore record these aims still within the circle itself, just as we recorded the experiences of things and of persons within the circle. Each of these four groups of activities is divided into its various parts, of which we have mentioned the chief representatives. In the angle which symbolizes

III
The System of Activities



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the interest of knowing life we have grouped the various sciences which embrace the manifold contents of experience. In a corresponding way we shall now have to fill the angle which symbolizes the view of life from the standpoint of doing. We must fill in the various abilities and powers of our mind. While one-third of the circumference of our circle of life was inscribed by the physical, psychological, humanistic and philosophical sciences, this second third of the circumference must be inscribed by the abilities for action with personal, social, organic and technological aims. On the side of knowledge we have moved from the periphery to the corner by turning to more and more abstract sciences. Correspondingly, we may fill the angle of "doing" by recording the more and more general abilities. But as it is only natural that language has but few definite names for such general groups of activities, it would be artificial if we were to enter into a detailed elaboration of those broader abilities and powers of mind which control the larger groups of the special mental activities.

(Diagram III)

PART IV—VOCATIONS.

XXIV

THE CHIEF TYPES OF VOCATION.

We now come to the third corner of the triangle in our diagram. We know the general aim of this third one-sided view of life. It is no longer the “interest is knowing” nor the “interest in doing” alone; it is a feeling interest, the interest in the satisfaction of a desire, a creation of pleasure and a removal of displeasure. We have fully discussed the meaning of vocation. We saw that knowledge and ability enter into its service but that it is something more than either, and more than both together. Every vocation demands that a human need be felt and that the way of fulfilling the demand be recognized and thus satisfaction be secured. To secure it we must know how to do it. To know how to do it means to have all the necessary information, that is, knowledge, and all the necessary powers of work, that is, ability. But above all it means to have an interest to satisfy the need, an enthusiasm for the work; besides the ability there must be willingness.

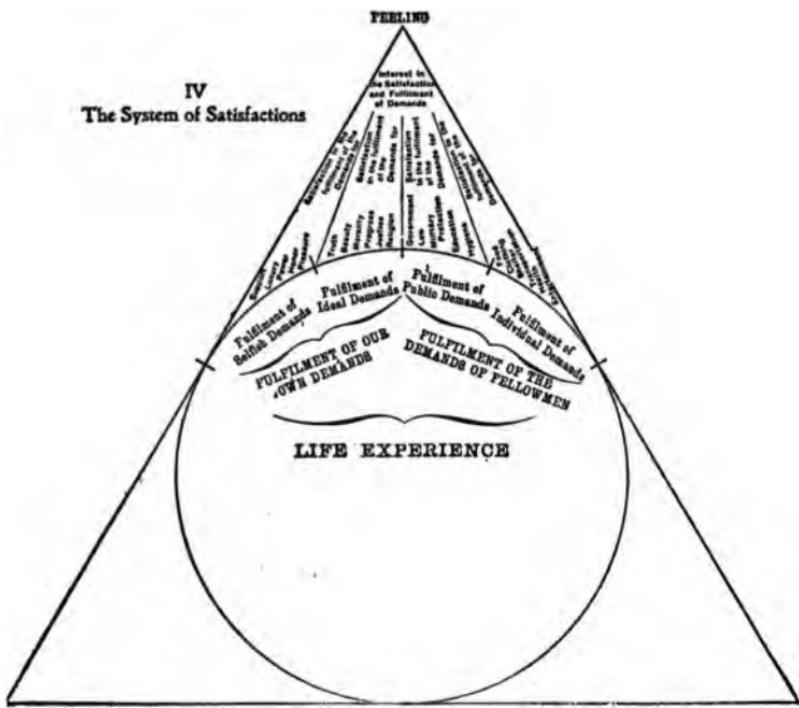
THE CHIEF TYPES OF VOCATION

If we look on vocation as ways of satisfying human needs, we must seek a principle of classification for these demands. We may discriminate four classes: the satisfaction of our selfish desires, the satisfaction of our ideal demands, the satisfaction of the demands of other individuals, and the satisfaction of public demands. Our selfish desires refer to our own support, our comfort and luxury, our accumulation of wealth, our social position, our honor and ambition and love and progress.

Individual demands are those which are given with the needs and desires of every organism. In the lowest forms of such demands, we have those which man shares with animals—the demands for food, health, and shelter. In the complexity of human life, these enlarge themselves into those general desires for support and household comfort, for food and clothing and housing, for treatment of disease and for bodily comfort. They are enriched in civilized life by the bodily demands for transportation and by the mental demands for information and entertainment. The public demands are those which are dependent upon the social life of

the community. In the foreground we
Man's find the need for physical protection of
Various the community, for legal protection, for
Demands education, for government, and for preventive sanitation. Finally, the ideal demands are those which turn to a world of truth, of beauty, of progress, of morality, and of religion. No doubt each of these demands is intertwined with desires of the other groups. The fulfillment of the

IV
The System of Satisfactions



THE CHIEF TYPES OF VOCATION

ideal demands is, certainly, an important desire of the community. To realize the belief in truth and beauty and morality and religion, is the hope of the social organism; and moreover it is inherent in the different individuals. Yet the deepest meaning of these demands for ideal goods would be lost, if we should consider them only, or essentially, as desires resulting from the community life, or as demands of particular persons. The meaning of the individual demands lies in just the fact that an individual pleasure is to be secured or an individual pain to be removed; but it is not the purpose of truth and morality and religion either to give pleasure or to remove pain. The deepest meaning of these ideals is, as we have insisted from the start, that they are *eternally valuable*. They ought to

Eternal Values be fulfilled. A realm of morality and truth ought to be built up; beauty and progress ought to be realized; religion ought to penetrate our life,—because the worth and meaning of every personality depends upon the service of these ideals.

In the same way we might say that many of the individual demands are steadily made public demands too. The demand for transportation or information served by a railroad or a **Public Demands** newspaper presupposes an institution of public character. Nevertheless, it is strictly different from the demands for law and government and army and navy. These latter, which fulfill public demands, are dependent upon the community as such, bound up with the

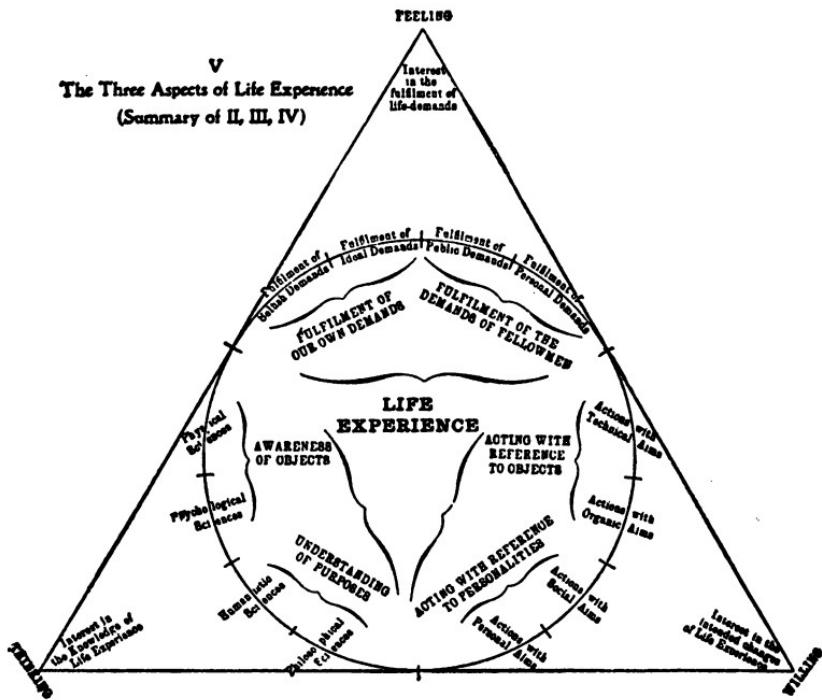
THE VOCATIONS AND THEIR DEMANDS

social organism, while the other group refers to the masses only as large combinations of individuals. Each particular individual wants his seat on the railway or his copy of the newspaper, just as each particular individual wants his stockings or his bread and butter. The demands therefore remain individual, even if there are millions of such individuals to be satisfied. Hence we have every reason to separate this group from the public demands which have meaning only with reference to the social life. Robinson Crusoe in his lonely life would profit from everything which the vocations create for the satisfaction of our individual demands, but he would have no use for the law and the government which serve the public demand.

In a rough grouping we have in the class of individual demands, the chief motives for all the vocations and occupations which supply the community

Motives with the pleasures and comforts of
for household life, give health and enter-
Callings tainment and information, and minister
to the practical needs of the individual
man. The farmer and the manufac-
turer, the business man and the physician work in
different ways toward what is in principle the same
goal. In the second group, the public demands, we
find the chief motives for these callings which serve
the political, the legal, the educative, the adminis-
trative, and the military needs of the community.
Teachers and judges, politicians and civil service
employees, soldiers and sailors are here to be
classed together. Finally, the third class embraces

V
The Three Aspects of Life Experience
(Summary of II, III, IV)



THE VOCATIONS AND THEIR DEMANDS

all the chief motives for the vocations directed toward the realization of ideals. The scholar and the artist, the reformer and the minister are fundamental types of this group.

If we are to record this result in our diagram, we must register all these demands in that third of the circumference of the circle which appears when the circle of life is seen from the point of view of the interest in the satisfaction of life's needs.

Unless our whole discussion so far has been in vain, we have now reached a point of clear insight into the fundamental difference among three things which are too often confused: knowledge, ability, and interests. We see now in what relation they stand to one another, and this insight is the most important thing for a clear understanding of the needs and requirements of any vocation. We have seen that a vocation can never be understood simply from the standpoint of knowledge, or from the standpoint of practical activity; but that its meaning lies in a human demand which is to be fulfilled; and that this fulfillment becomes possible only by a certain knowledge of facts and a certain ability for work. We have determined the character of a

The Three Factors vocation as soon as we understand these three elements and the exact relations in which they stand to one another in any particular case. We may call them the motive factor, the knowledge factor, and the ability factor. Their relation is seldom a simple one. We shall soon see that very different motives may co-operate in a single profession, that

THE CHIEF TYPES OF VOCATION

is, that very different needs are to be fulfilled and satisfied. Still more are there many different groups of knowledge and ability which may be necessary to equip a person for a chosen vocation. We must, therefore, describe the essentials of every vocation by a triangle inscribed within the circle of life, every corner of this triangle being connected with some point upon the circumference of the circle. From one corner we must draw lines to the various demands which are to be satisfied; they give a record of the motives. From the second corner we must draw lines to the various sciences which are necessary for the special vocation; they give a record of the knowledge required. From the third corner we must draw lines to the various activities in which the vocation presupposes training; they give a record of the necessary abilities.

We shall draw such triangular records for the most important callings; but before we enter into such an analysis of the vocations, we must inform ourselves which vocations and occupations are important in the United States.

XXV

THE OCCUPATIONS OF THE AMERICAN NATION.

What groups of occupations are predominant in our civilization? What groups of occupations are especially important for our time? If the answer to such a question is to be helpful for practical needs and choices, we may also inquire from the start how such vocations are distributed among men and women and what rôle the age of the worker plays in this distribution of useful occupations. The long series of big volumes issued by the National Census Bureau in Washington gives most detailed answer to every question which the distribution of the vocational life of the country suggests. Here we can only point to a few characteristic results.

If such a survey of statistics is to help us toward an evaluation of what men and women are to do in the service of mankind, we must at once correct a fundamentally one-sided view. The

Gainful Occupations statistics deal with the occupations of persons of ten years of age and over.* Among these the official tables of occupations show a definite work for 80% of the male population but only 18.8% of the female population. If in this way four-fifths of the male persons and less than one-fifth of the female popu-

*Census of 1900.

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lation are employed in lucrative work, it suggests that the overwhelming majority of women are not engaged in gainful occupations. It is evident that everything depends upon definitions. The woman who is helping in the field or in the mill or who washes for the neighbors is counted among those whose vocation is recorded in the statistics. The woman who educates her children, who cooks the meals for the family, who mends and washes and who saves the earnings of her husband is naturally left out of such a statistical account; and yet who will deny that in a higher sense her occupation is a true vocation, is helpful and gainful and deserves just as much careful preparation in those domestic pursuits as any other vocation in the land? If we come to analyze the studies and the training which are desirable as an introduction to a useful life, we certainly shall not omit those female activities in the home which fall through the meshes of official statistics.

To a certain degree all this is also true of those lines of work which may not be confined to the home and which nevertheless have no commercial

Valueable exchange value. A woman who devotes
Occupations her life to charity and social reform
 may find no place among the statistics
 of "women at work." But here again
 it is no less important for the com-
munity to give the best possible preparation for
this kind of work and to prepare for such activity
in the most rational and the broadest possible way.
Who will say that the man of means who devotes

THE VOCATIONS AND THEIR DEMANDS

his life to political reform without seeking a gainful office, or to social help without any financial return; or to a refined interest in art and literature and scholarship without any payment, is not engaged in an occupation that is most important and most valuable for the community? Society certainly has no right to neglect the vocational education of those who devote themselves to the fulfillment of important needs, even if the motive is without relation to commercial gain and is confined to an ideal enjoyment, to the feeling of duty, or to personal ambition for influence and power.

If we confine ourselves at first to the breadwinners, we may begin with those who demand the most complex educational preparation, those whose services are usually called professional.

Proportionate Figures of Occupations. By far the largest class is that of the teachers who number 446,133. This figure includes 7,272 professors in colleges and universities. Next in number are the physicians and surgeons, 132,002; besides about 30,000 dentists and over 8,000 veterinaries. Then come the lawyers, 114,460; and quite near to them the clergymen, 111,638. The engineers are 43,239 in number, among whom are approximately 20,000 civil engineers, approximately 3,000 mining engineers, approximately 14,000 mechanical and electrical engineers, and approximately 6,000 surveyors. The number of electricians amounts to 50,717; architects, 10,581, designers, draftsmen, and inventors, 18,943—with whom we may class artists and teachers of art, who figure up

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to 24,873, and musicians and teachers of music who reach the high figure of 92,174. There are only 5,817 authors and scientists, 4,180 librarians, 8,847 chemists. The journalists have reached more than 30,000; the actors, 14,708, the professional showmen, 16,572. So far we have not mentioned the government officials. The country has 37,020 engaged in the national government, 4,345 in the state governments, 22,697 in the county governments, and 22,545 in the city or town governments. It is perhaps most natural to add here the watchmen and policemen, 116,000; the firemen, 14,534; and finally 35,000 soldiers in the United States army, and 6,000 sailors and over 2,000 marines in the navy.

We may turn from professional work to the market, with all its trade and manufacturing, agricultural, and transportation interests. The number

of persons engaged in agricultural pursuits is the largest of these various groups, 10,381,765. The farmers and planters among them figure up to 5,483,618, the hired farm and plantation laborers amount to 2,000,000. In addition to these there are 2,366,149 farm-laborers who belong to the family of the farmer. Of stock-raisers we have 37,269; stock-herders and drovers, 47,359. The lumbermen and raftmen figure up to 72,000; gardeners, 36,577; florists and vine-growers, 16,836; fruit-growers, 8,375. Let us mention also the 10,875 dairymen and dairywomen, the 24,734 turpentine-farmers and laborers, and the 36,000 woodchoppers.

Next to the agricultural pursuits, the manufac-

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turing and mechanical activities demand the greatest human force: 7,085,309. Then come the carpenters with 600,000 men, but the miners follow them closely with 563,000, of whom 344,000 are coal-miners and 52,000 gold and silver miners. The next large figure accuses us of extravagance in dress. There are 346,884 dressmakers and 229,649 tailors, besides 150,942 seamstresses and 87,849 milliners. Of boot and shoe makers, there are 208,903, about half of them in shoe-factories and half outside. There are only 155,147 persons engaged as printers and pressmen.

But let us turn to the great staples of iron and steel. We have 226,000 blacksmiths, 290,000 iron and steel-workers, 283,000 machinists, 33,000 steam-boiler makers, and so on. Of other metal-workers, we find 70,500 tin-plate and tinware makers, 26,000 brass-workers, and 26,000 gold and silver workers. Of brick and tile makers there are about 50,000, and the same number of glassworkers, and 54,000 marble and stone cutters. In the building trades, besides the carpenters already mentioned, we find 160,800 masons, 277,500 painters and varnishers, 35,694 plasterers, 97,785 plumbers and gasfitters, 9,000 roofers and slaters, not to forget the 22,000 paper-hangers.

The cotton-mill operatives constitute an army of 246,000; hosiery and knitting mill operatives, 47,000; silk-mill operatives, 54,000; woolen-mill operatives, 73,000; and in all the other textile mills, such as hemp or linen or worsted,

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the operatives' numbers are 104,619. The saw and planing mill employees figure up to 161,624, and other woodworkers to 111,596.

Let us not forget those who help to feed us. There are 113,193 butchers, 79,188 bakers, 40,500 millers, 31,194 confectioners, 19,241 butter and cheese makers, 13,776 meat-packers, 9,249 meat and fruit canners and preservers, and, we may add, 68,940 fishermen and oystermen. The beverages are supplied by 35,000 persons, of whom 9,700 are bottlers. Tobacco and cigar factory operatives run up to 131,452.

This whole world of manufacturing and mechanical pursuits is controlled by 243,000 officials and manufacturers, including the builders and contractors, the publishers, and so on. The engineers and firemen at work in these industries number 223,495. Needless to say that many a smaller industry has not been mentioned. In this short survey, for instance, we have not spoken of the 30,000 bookbinders or the 36,000 paper and pulp mill operatives, of the 30,000 upholsterers or the 27,000 photographers, of the 42,000 leather curriers, of the 10,000 potters, of the 7,000 trunkmakers, of the 16,000 watch-factory operatives, of the 17,000 dyeworks operatives, of the 19,000 carpet-mill workers, of the 8,000 corset-makers and the 4,000 piano-tuners, and many others.

From manufacturing we may turn to trade. There are 42,326 wholesale merchants and dealers, but 790,886 retailers. The largest group among them, those engaged in the grocery trade, figures

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up to 156,000. Provisions demand the work of 34,000; dry-goods, 45,000; drugs, 57,000; coal and wood, 20,000; clothing, 18,000; lumber, 16,000; boots and shoes, 15,000; and so on. There are 73,277 bankers and brokers, 119,208 insurance **Trades** and real estate agents, and 121,954 other agents; 568,181 clerks and copyists in business, and 92,919 commercial salesmen. Officials of banks and companies number 74,000, and the great army of salesmen and saleswomen has grown to 611,139. Indirectly there belong here the stenographers, numbering 98,743, and the typewriters, 13,621. There are 44,000 messenger-boys and 17,000 office-boys.

It is only one step from manufacturing and trade to transportation; 582,150 are employees of steam railroads, a quarter of a million among them being laborers; 117,000, engineers and firemen; 50,000, switchmen; 45,000, station-agents; 43,000, conductors; and finally 19,000, baggagemen. The street railways have 24,000 conductors and 37,000 motormen. There are 59,500 packers and shippers, 35,000 foremen and overseers on the railways. Thirty-seven thousand have to do with livery-stables; 502,000 are classed as draymen, teamsters and expressmen; 36,574 as carriage and hack drivers; 78,406 as boatmen and sailors. We may also link with this group the transportation of communication: 14,757 persons are telegraph and telephone linemen; 55,824, telegraph-operators; 19,158, telephone-operators.

OCCUPATIONS OF THE AMERICAN NATION

We may close our survey with some figures referring to personal service. Here we have three gigantic figures: 2,577,951 general laborers, 1,560,-

Personal Service 721 saloon-keepers, and 1,453,677 servants and waiters. Next to them by far the largest group is made up of those who do laundry work by hand, 364,020.

The barbers and hairdressers make a procession of 131,000; the housekeepers and stewards, 155,000; the janitors, 56,577; the nurses, 120,956; the boarding and lodginghouse keepers, 71,281; the hotel-keepers, 54,797; and the restaurant-keepers, 33,844. There are more than 12,000 elevator tenders, and more than 8,000 bootblacks. With these, the story of the mere figures is now told.

XXVI

THE VOCATIONS OF WOMEN.

From the figures given we gain some insight into the relative importance of the various vocations in our national life, as far as it expresses itself in the number of those who devote their energies to them. Yet those figures are unable to indicate the subtler features of the vocational life of the country. They show no difference of age, race, state, and especially of sex. All these differences are hidden in the general numbers; and yet it is evident that for those who are desirous of winning their bread or of rendering some useful service to the community, and who are therefore anxious to grasp the whole present situation of vocational work, these differences must be of importance.

At least one question ought to be considered more carefully. How is the work of women related to that of men, or rather how far do women take part in gainful occupations? We have already emphasized the fact that the breadwinners among women are in a higher sense not confined to those who are engaged in a special occupation. Those who fulfill their duties in home life as wives and mothers and daughters, or who serve public functions without financial return in charity or

THE VOCATIONS OF WOMAN

social work, must have equal standing when the nation musters the rank and file of those who fulfil the important demands of the people.

But at first we are concerned with the nearly five million women who are really engaged in gainful occupations in the ordinary sense of the word. One fundamental difference between women and men shows itself, of course, in the different distribution of ages. Of the men who work, only 24.7%—while of the women, 44.2%—are below twenty-four years of age. The difference comes out still more strongly in the statistics of those below twenty. There are only 12.7% of men but 25.6% of women.

But these percentage calculations may be sufficiently expressed if we abbreviate them and leave out the decimal. We shall in future say 25% instead of 24.7% and 44% instead of 44.2%.

At twenty-five years of age, we reach the turn of the road. The percentage of men becomes slightly larger than that of women. Between

Age in age there are 27% among the men and
Woman's 24% among the women, and this differ-
Work ence rapidly increases. Between thirty-
 five and forty-four years there are 21%
of the men and 14% of the women, and above forty-
five years of age we have 28% of the men and only
18% of the women. It is clear that this difference
expresses the fundamental fact that the overwhelm-
ing majority of women who marry give up the
breadwinning occupation in order to devote them-
selves to the new duties of domestic character. In

THE VOCATIONS AND THEIR DEMANDS

great talent of the women for this work, which has become here more than in any other country a blessing for suffering humanity.

The next large figure is, again, no surprise. We find 87% of the laundry work done by women, and 83% of the boarding and lodging house keeping. Eighty-two per cent of boxmakers refers to one of the few industries in which the female workers strongly outnumber the men. The nearest to it are the shirt, collar, and cuff makers, with 77%, and the hosiery and knitting mill workers, among whom 73% of the operatives are women. Yet their number is after all not very large; 28,293 women as against 10,560 men. But this same relation of 73% is found in another vocation in which the gigantic number of 327,206 women are engaged as against 118,481 men. It is the vocation of the teacher.

Let us stop for a moment at this figure, as it is one of the greatest importance for the whole national life. In objective figures, women teachers are outnumbered only by the servants and waitresses, the women agriculturists and laborers, the dressmakers, and the laundresses; in short, by women in occupations that need little education. Among those who gain a better education the teaching profession is thus far the leading one of the American women. Sixty-three per cent of them are native whites with both parents born in this country; 27% native whites with one or both parents foreign-born; 5% are foreign-born, and 4% negroes. Two hundred and fifty-one thousand teach in country districts or in

THE VOCATIONS OF WOMAN

cities of less than 50,000 inhabitants. One hundred and fifty-two thousand are below twenty-five years of age, 114,000 between twenty-five and thirty-four, 38,000 between thirty-five and forty-four, 15,000 between forty-five and fifty-four, 6,000 between fifty-five and sixty-four, and 1,500 still older. Three hundred and two thousand are single, about 15,000 married, about 10,000 widowed, and 1,200 divorced. Seventy-two per cent of the women teachers are living in their homes, about 7% as heads of families, 33% with the father, 18% with the mother, 14% with other relatives, and 28% are boarding. But the most important figures are after all those which indicate the relation between men and women in the profession. We said that to-day 73% are women, but we may first add that ten years ago only 70%, twenty years ago only 67%, were women; and moreover that this proportion is nowadays very unequally distributed in different parts of the country. The participation of 26% of men teachers appears in the statistics only because the South and the West are still holding a large number of strong men in the teaching profession. In the East this number has been reduced, in certain States, to 7%, more than 90% of the teachers being women; and this certainly is a figure which no one ought to see without some misgivings. The women are not to blame for rushing in where men are leaving the field, but society is to blame for adjusting the whole school life too much to the fact that women are able in the general average to teach at a lower salary than men, as they do not have to provide for a family.

THE VOCATIONS AND THEIR DEMANDS

It is not sound that the education of boys in the public schools should be entirely given over to women.

A smaller number of women than in the field of teaching, but still a larger percentage compared with men, is working at stenography and typewriting: 77% of women as against 23% of men. And the relative importance of this occupation for women is steadily growing. The more modern life becomes adjusted to the typewriting machine and to the quick pen of the shorthand writer, the more the high qualities of the woman for this work, which demands general education, technical training, and discretion, become evident. To be sure, the need for this occupation has not so far spread equally over the country. The census shows that of the 85,000 female stenographers and typewriters, more than 16,000 are engaged in the State of New York, 11,000 in the State of Illinois, and more than 6,000 in Pennsylvania, Massachusetts, and Ohio, while many States have hardly developed this vocation. Illinois has only the sixteenth part of the population but the eighth part of the typewriters in the entire country. Sixty-three per cent of this class are below twenty-four years of age, and 31% between twenty-five and thirty-four, only 6% being older.

The only further important calling in which women are in the majority is that of musicians and teachers of music—57%. Their number is 52,000. A similar percentage among the laborers belongs

THE VOCATIONS OF WOMAN

to the silk-mill operatives, and glove-makers—62%. In every other gainful vocation of the land women are in a minority.

To mention some of the most important vocations in which women take a considerable part, the artists and teachers of art reach 44%; literary persons, 32%; actors, 20%; bookkeepers

Other Occupations for Women and accountants, 29%; packers and shippers, 31%; telegraph and telephone operators, 30%; saleswomen, only 24%, 142,000 saleswomen standing as against 449,000 salesmen.

Among the manufacturing pursuits we have 31% of women among the tobacco and cigar factory operatives, 46% of carpet factory operatives, 41% of woolen-mill operatives. Below 10% we find the government officials, where 8,100 women stand against 78,000 men, and the physicians, where 7,389 are in competition with 127,000.

We may close our survey of female occupations by an outlook over the changes which occurred between the census of 1890 and the census of 1900. So far we have always spoken of the percentage of women compared with the percentage of men; that is, we have asked how many women there are among a hundred persons engaged in a special occupation. But let us now consider another percentage. How many women belong to a special vocation among a hundred women engaged in occupations at all? Let us compare the results of the last census with those of the census before last. In many occupations there is no change of percentage. For instance, 2.3% of all breadwinning

THE VOCATIONS AND THEIR DEMANDS

women were cotton-mill operatives, according to the census of 1900, as well as according to the foregoing one. But to point to the greatest percentage of change, while in the preceding census 30.4% of all working women were servants and waitresses, only 24.1% belong in this group, according to the last census, and in a corresponding way the dress-makers were reduced from 7.3% to 6.5%, the seamstresses from 3.7% to 2.7%. The agriculturists also have become relatively fewer, falling from 13.4% to 12.5%. Yet this last figure does not hold true of the white population. On the contrary, the native whites have been increased in those ten years by nearly 2%, but the great decrease came among the negro women whose number went down by 4%. The percentage of saleswomen increased from 1.5% to 2.8%, that of nurses from 1.0% to 2.1%, that of stenographers from 0.5% to 1.6%. If the marked changes show a decrease in the servants, waitresses, seamstresses, and so on, and a marked increase in the nurses, stenographers, typewriters, and so on, it is evident that the women who have to earn their living have succeeded and are succeeding steadily in pushing upward the level of education on which they can engage in gainful occupations.

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THE ENGINEER.

We have now before us the vocational statistics of the country, and must, therefore, return to our chief aim—to the analysis of the special vocations with respect to the knowledge, abilities, and motives which they need. In order to become aware of this manifoldness of mutual relations, it may be best for us to analyze carefully at least one typical vocation in full detail. Then we shall have a model which indicates how every vocation can be worked out. As soon as we have recognized the character of such a careful analysis, it may be sufficient later on to show the chief outlines for certain other important occupations. It is quite indifferent which vocation we choose as a sample to illustrate the scheme. Yet we may select one which is relatively simple and familiar to everyone. Let us, with this interest, look at the calling of the civil engineer.

The Civil Engineer It is evident that the engineer serves an important human need. The engineer who builds a bridge or a tunnel or a railway fulfills the demand of his fellow men for quick transportation. We might call his satisfaction in the fulfillment of his demand his motive. Of course he must know the science of civil engineering. This is his knowledge. He must

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have the ability and training in making use of this knowledge for the special practical task. If we were to demonstrate this in our diagram, we should simply draw a straight line from the point where we have the demand for engineering work in the upper third of the circumference to the point where we have registered the science of engineering in the left-hand corner, and from there to the point where we have recorded the technological work of the engineer in the right-hand corner. If we finally draw a line from this point in the right-hand corner to the point in the upper circumference where we started, we have a simple triangle which indicates the connection between a definite motive, a definite science, and a definite practical achievement. But it is evident that such a primitive connection between the three points is in no way satisfactory. It is not true that the engineer has only the motive of helping his fellow men in transportation. Has he not also, for instance, the motive of earning his living? It is not true that the science of engineering is sufficient for the fulfillment of his task. Nor is training in engineering work the only ability which he needs for success in his career. If we look further into the details, we observe an extreme complexity even in such a clearly defined profession. We need therefore a more complex form for the graphic representation of the special vocation. We must have a diagram which connects the various motives with the various sciences and the various abilities. No form suggests itself more naturally than a triangle inscribed in the circle of

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life. One of the three corners of such a triangle points to the motives, one to the sciences, one to the activities, and straight lines, radiating from the three corners, may indicate which motives, which sciences, and which activities are involved. (Diagram VI.)

We ask first what kind of knowledge is really desirable for a civil engineer. The engineer himself is inclined to put the chief emphasis on his knowledge of mathematics. There is no act in his work which does not involve calculation. He must be master of arithmetic and algebra, and just as much of geometry and trigonometry, and to-day's progress in engineering constantly leads him more and more to the higher branches of mathematics. All his mechanical work becomes reliable only in so far as it has a mathematical foundation. Yet we can hardly deny that physics is of equally fundamental importance. The laws of motion and energy, of gravitation and cohesion, of electricity and thermodynamics, of transmission and reflection of light, of transformation of energy, and so on, form the background for every calculation of the engineer.

Sciences Needed by the Engineer

But this certainly does not close the list of those theoretical sciences which the engineer needs besides his applied science. Petrology and geology will not play the important rôle of mathematics and physics for him; and yet how can he work in mining or tunneling or in laying foundations without being familiar with structural and dynamic geology? And how can he choose the

THE VOCATIONS AND THEIR DEMANDS

right stones for the walls and buildings which he plans if he does not know the characteristics of the minerals? In a similar way chemistry enters into his work. The iron and steel and cement which he uses can be understood in their effectiveness only from a chemical point of view. And again chemistry touches his work where hygienic problems are intertwined with those of engineering. This is also the point where biology, especially bacteriology, gains contact. Nor is it by chance that the technological institutes demand some astronomy from their students, since astronomical observations for the location of points frequently become necessary in actual work.

Needless to say that in the center of his studies stands the theory of engineering itself: that is, the theoretical knowledge of the conditions under which the aims of engineering can be fulfilled. The theory of structures, for instance, with all its branches, and the theory of hydraulics, go far beyond the mere physics of mathematics which they need. They show the practical application of physics for the special conditions when the water flows through pipes or channels, or when the loads burden the bridge. Moreover, the civil engineer needs at least a certain acquaintance with the general features of the other engineers' departments; mining engineering and metallurgy, the fundamental principles of architecture, the chief outlines of mechanical engineering, chemical engineering, and sanitary engineering cannot be entirely neglected.

But we may turn in a quite different direction and

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ask whether or not economics, jurisprudence, the principles of business and finance are needed for the

career of the successful civil engineer.

Knowl-
edge of
Finance
and Law And even the slightest survey will convince us that this question must be answered in the affirmative. The work of the civil engineer is not seldom part of great enterprises which must be financed and executed and considered in their legal aspects by the leader of the undertaking. Economy in construction and design and the expense for maintenance and operation and repair cannot be learned in physical textbooks. The engineer is not concerned only with nature but also with society and all its economic and financial relations.

These branches of knowledge enter directly into the life-work of the civil engineer, and we may abstract from those which are indirectly of use. To mention a few of the most important by-ways of his professional preparation, we may point to the fact that no high-class engineer ought to be without acquaintance with the literature of the subject in foreign languages, especially in German and French. A reading knowledge of both foreign languages seems essential. Furthermore, whatever he constructs must be controlled by an instinctive sense of beauty which is in fullest harmony with the desire for usefulness and economy. An aesthetic training and development of the mind by its acquaintance with the history of art and of architecture can play a great part in the work of

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any man who wants to reach out beyond mediocrity. If we were to express the whole manifoldness of these connections in our diagram, it is clear that a single straight line from the one point where we register the profession of the civil engineer to the one point in the corner of knowledge will be entirely insufficient. What is needed is rather a connecting line which branches out in many different directions, takes a straight course toward the science of engineering itself, but sends its side-lines to physics and chemistry, to mathematics and geology, to economics and jurisprudence, to foreign languages, and so on.

In a corresponding way we cannot hope for a single formula to express the will activities which the engineer must be able to master. If we abstract from the mere knowledge which he has acquired and ask what will activities must be at his disposal or must be trained by his professional preparation, we see at once the complexity of the task. Let us think at first of the strictly professional powers which he must have acquired somewhere in the course of his studies. He must know how to survey and how to plot, how to use the tape and compass and the leveling instruments, must know how to make diagrammatic maps, how to use the sextant and the barometer. All this is not knowledge but ability, and, therefore, trained power for practical work. He must know how to take astronomical observations or how to conduct a geodetic survey. He must be able to make designs,

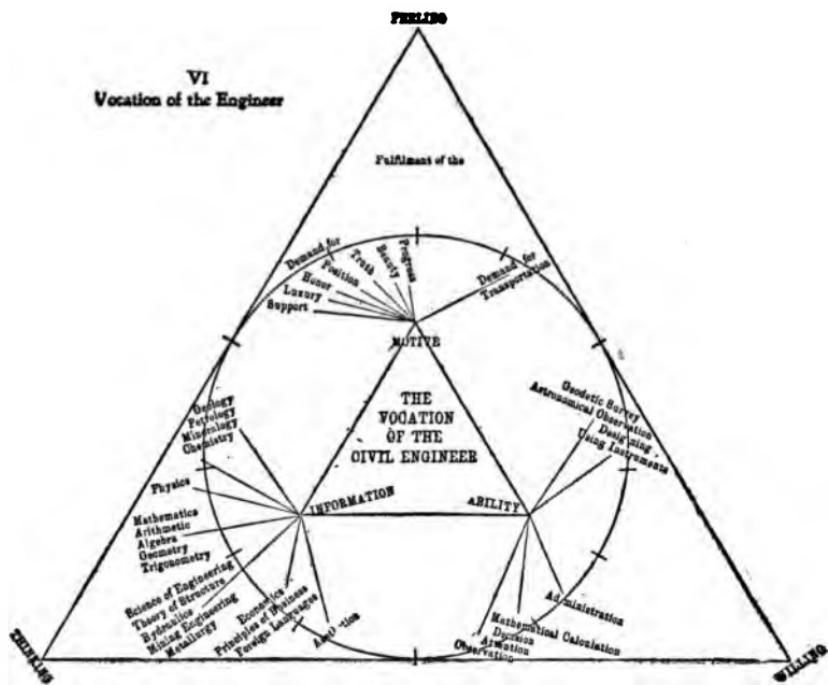
The Engineer's Ability

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for instance, for railroad or highway purposes; he has to make hydraulic measurements of the volume of flowing water, has to compute and design structures of wood or steel or masonry, must be able to make an analytical study of beams and roofs, walls and dams, must be able to make working drawings for bridges—in short must master the technique by practical ability. Mere knowledge cannot be substituted for any one of these powers, however much knowledge is necessary for them. Just as a great critic of art may be a most mediocre artist, an engineer with most thorough knowledge may nevertheless be very unskillful in these practical activities, if he lacks a sufficient training.

But we must go further. The application of mathematics to the concrete problems in hand is also a practical activity which needs training. We insisted from start that mathematical calculation as such is not knowledge but activity, and if that is true of the adding of a few figures, it is still more characteristically true of the great mathematical calculations with which the engineer determines where the two arms of the tunnel are to meet in the middle of the mountain or how the bridge can be supported. His economic calculations of his specifications and contracts must likewise be learned by training the ability to perform the work.

We saw, moreover, that we have to do with will activities even where no technical abilities are involved but where the fundamental powers of the mind are securing the desired result. The powers of observation, of systematic attention, of energetic



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action, of quick instinctive decision, are essential for every engineer. And the special activities of testing

**Other Es-
sen-
tials
Needed.** and experimenting, of choosing and employing men, of organizing and administering great concerns, may decide between success and failure. Hence the line which we have to draw in our diagram from the point of vocation to the corner of work must also branch out in a number of different directions.

But, finally, we must analyze more carefully the relation in the third corner where we recorded the demands which are to be satisfied by the vocational activity. The work of the civil engineer, we said, satisfied the demand, for instance, of transportation. Yet at the same time we emphasized the fact that while the demand for transportation among the millions gives purpose and meaning to the work of the engineer, he himself is certainly not controlled by this demand only. Just this is the complex structure of every vocation, that it wonderfully intertwines the most different purposes. The individual engineer who builds the tunnel and the railway bridge serves the demand of the unknown masses for quick transportation, but the organization of society allows him to serve this multifold demand of others and yet at the same time to serve his own personal demand for material support. He gives his labor and thought to those millions who need the new railway and from them in exchange he gets the means for his household

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and his competency. His demand for support belongs in the class of his own selfish demands; he would not become an engineer if he could only help the traveling of the millions without a chance to support himself. On the other hand, his desire to support himself would never have sought fulfillment in the form of the engineering profession, if the demand for the railways had not been existing. This satisfaction of the worker's own demand for support is of course common to every profession and vocation which has a standing in the community. If we are to characterize and graphically to register and to separate the various vocations, we have therefore the full right to put the chief emphasis on those particular demands which the various vocations serve. It is common to all of them that they help to earn a living for the worker, but it is their characteristic difference that one helps toward transportation while another helps toward curing diseases or teaching the youth or defending a criminal.

But this cannot be the last word, if we seek the full meaning of the engineering profession. He is no true engineer who is not touched by a still deeper

Ideal Interests desire and who does not choose his profession in obedience to a higher call. The mere prospect of earning a living because so many individuals need his bridges and tunnels would never fill him with the enthusiasm which gives the best strength and energy to his noble calling. First of all there is a scientific interest. Independent of money and money's worth,

THE ENGINEER

he lives for his science and devotes himself to his scientific studies. His problems of mathematics and physics and their practical application are the unceasing stimulus to his intellect and to his ambition. He does not serve his material desires; he serves the ideal of truth, and the deepest happiness which comes to him from his vocation results from this devotion to the problems which it offers to him.

But the ideal demands to which he subordinates himself go still further. If he grasps well the spirit of that technical work, he feels with proud emotion

Emotional Demands how through it he can serve the progress of mankind. He does not care for this or that individual who will pass over the bridge or rush through the tunnel, but he does care for the glorious development of mankind which masters and harnesses nature in order to carry man's power over the streams and through the mountains and to build up civilization in thousands of new forms at the ends of the earth. The chance demands of individuals are submerged in the forward striving of all humanity. He feels the pulse-beat of progress in mankind and it is an ideal value to which he devotes his thought and work, his hope and ambition.

Thus the motives of the vocation may go far beyond the immediate demands to be fulfilled. The desire for transportation is certainly what gives the direct origin and life to this particular profession. Still the demand for personal gain and support is needed on the one side, and on the other the devotion to truth and the belief in the glory of hu-

THE VOCATIONS AND THEIR DEMANDS

man technical progress. The calling has therefore a manifold root. It could exist if some of these roots were cut off. A man may be some kind of an engineer, if he has nothing else in mind but the desire to become rich; and he may be still more an engineer if he has no other purpose than to serve well the needs of those who want his work. And he may also be an engineer if he has no other ideal than just the interest in the scientific progress involved. Finally he may do it all for no other reason than enthusiasm for progress. But if the profession is to come to its fullest development and its richest unfolding, no one of these roots ought to be destroyed; all together they ought to fill the vocation with energy and inspiration and power.

If we are to record all this in our diagrammatic form, we have to take account of these manifold demands as well as of the manifold knowledge and ability. Now at last we have before us

The Complete Scheme the complete scheme of this one profession, one among the more than three hundred which are represented in the

American community. But this one, with the careful analysis which our diagram represents, may well serve as a sample of the way in which all other professions might be studied in detail in order that we may know what motives are needed, what knowledge is desirable, and what ability is required. (Diagram VI.)

XXVIII

THE FARMER.

If we now turn with less detail to some other callings which we found in our statistical survey of the occupations, let us not forget that our classification did not allow us to discriminate be-

Qualities of Work tween the various qualities of the work. The man who has a little village store and he who owns a gigantic department-store in a large city were classed together as business men. One who plows a few acres of land and another who has miles of wheat under cultivation are both farmers. One who teaches reading and writing in a little district school and another who teaches the most advanced subjects to the students of a large university are grouped together as teachers. There are a few professions like that of the physician or the lawyer in which, on the whole, all the workers are on the same high level. One may be successful, another not; one may be brilliant, another not; one may have a large practice and another not; but all must have devoted some years to their medical or legal studies. But in the overwhelming majority of vocations, the level of preparation lies at extremely different heights. To examine the instruction and training and motives needed, therefore, usually means also to show how

THE VOCATIONS AND THEIR DEMANDS

a larger and larger expansion in every one of these three directions leads to higher and higher efficiency.

We have a typical case in the vocation of the farmer. We saw the large proportion of the American people which is devoted to agricultural pursuits. Now it is evident that even the **The Ideal Farmer** smallest farmer who works with the least preparation must have some motive, some knowledge, and some ability.

His interest is to contribute to satisfying the demand for food. He would not raise on his little farm a vegetable which no one in the land likes to eat. Nor could he raise anything unless he had some knowledge concerning the soil and the plants and some ability for plowing and sowing and reaping. In principle there is nothing new to be added when such primitive farming is developed to the systematic agricultural pursuit of those who have devoted years of study in preparation. The needs of the community for food are to be fulfilled, knowledge as to the means of fulfillment is required, and abilities to make use of the knowledge are trained. And yet what a world of difference! The chances for the farmer's personal success are multiplied, the earning capacity of his land is rapidly increased, his farm will grow and grow, and his whole life will be raised to a higher level, not only in the commercial sense but in all that gives meaning to life.

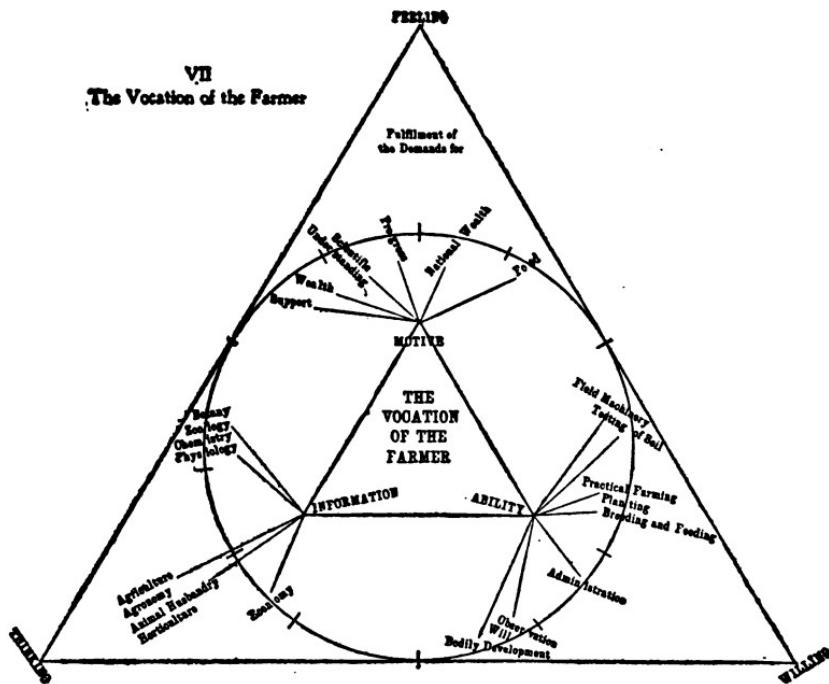
What should the ideal farmer know? We find in the foreground, of course, the technical knowledge which had its place in our diagram among the applied sciences. It is usually called agronomy,

THE FARMER

so far as it refers to the field and the work in the field, and it includes drainage and field crops, manure and rotation and fertility, bacteriology of the soil, germination and growth of the seeds. The enemies to plant growth, weeds and weed seeds, must be studied systematically. He must know the field machinery and the farm power-machinery, must know its construction, operation, and adjustment. In a corresponding way he has to study animal husbandry, the breeding and feeding of animals, the production of wool and of meat, dairy husbandry, with its systematic knowledge of the relations of bacteria to the dairy industry and the chemical composition of milk. Or, in horticultural lines, he must know the principles of fruit-growing, of vegetable-gardening and plant-propagation, the distribution and production of forest trees and their natural uses. And if he seeks a real deepening of these studies, he will not fail to familiarize himself with the history of agriculture; with agriculture among different peoples and countries, and the influence of soil and climate, of race and custom, on agricultural success.

But we saw in our diagram that practical sciences, like such agronomic or horticultural Sciences ones, result from the joining of two Needed in groups of sciences: the knowledge of Farming purposes and the knowledge of naturalistic facts. The broader study of the applied sciences therefore demands that the interest be not confined to the applied science itself but that this be based upon a careful study of the

VII
The Vocation of the Farmer



THE FARMER

natural sciences which are applied. In the case of the farmer, of course, it would mean a serious study of botany and zoology, of physics and chemistry, and finally of physiology. And these demand a certain background of mathematics. In a secondary way the all-round student of agriculture will not forget the study of architecture and civil engineering. Finally, he needs a knowledge of those purposes which are joined to the natural sciences in the applied sciences. In the farmer's case these purposes are essentially economic ones. A study of economy in the broadest possible way, with a rich background of history and general economics, and moreover some acquaintance with public finance, with money and banking, with labor problems, seem indispensable for a really educated agriculturist.

If the knowledge of the ideal farmer thus touches most different fields of information, his training is no less inclusive. Again the first place belongs

Training of the Farmer to the technical abilities. He must be able to handle his tools and his field machinery, he must be able to judge his corn and oats and wheat, to plant his grain and to treat it, to combat the insects and to fight the weeds. He must have training in determining the physical and chemical qualities of the various soils, he must be able to experiment with the field crops, must have practice in the breeding and feeding of cattle and sheep and horses, must be able to manage the herds, must understand how to test the quality of the milk, must have prac-

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tical training in the growing and handling of vegetables for the market—in short, he must be able to do a thousand things for which mere knowledge is not sufficient and in which training alone can count. But here again the specialized technical training is not sufficient. His vocation demands his having exercised his body well and having developed a mastery of his muscle system and still more his having trained his powers of judgment, of careful observation, of energetic will, of economic adjustment of means, of practical management of employees, of intelligent commercial dealing.

But if he has attained such wide knowledge and such many-sided training, he sees his own vocation from a higher point of view. He is now more conscious that he is not only working for his household needs and his bank account in contributing to the satisfaction of the need for food. He has come to an understanding of the whole national life, and now feels that his work serves the progress of civilization; that he increases the wealth of the community; that he is doing a productive work which is valuable in itself, independent of the profit which the individual earns by it. Moreover the work has found new interest. With his scientifically trained eye, he sees most fascinating problems of plant and animal life, of chemistry and physics, and of economics, in all that grows around him. What at first was a monotonous drudgery has become, through years of study, an inexhaustible source of ever new interests. His impulses and interests and motives have therefore become just

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as much ramified as his knowledge and his ability. We can again express it in the form of our diagram if we connect these various points with the corners of our central triangle. (Diagram VII.)

XXIX

THE BUSINESS MAN.

We have said that the activity of the business man may likewise pass from the lowest to the highest stage, from a primitive function which relies on

Educa- instinct to the commercial activity of
tional the best trained business administrator.
Needs of What does a young man need who seeks
the Busi- a special education for commercial ac-
ness Man tivity? The first thing we should de-
mand is the study of the principal raw
products which the country needs and
the chief manufacturing industries which flourish
in the country, the facilities for internal commerce,
the waterways and railways and seaports, the knowl-
edge of the principal countries of the world and
their products and trade. Secondly, he needs some
knowledge of economy, the elements of the theory
of producing and distributing and consuming. He
must understand the function of money and banking
and the elements of commercial law, contracts and
negotiable papers, insurance and leases.

We further expect a manifold ability, training
in penmanship and commercial correspondence,
which presupposes mastery of the English language,
its style and spelling; and no less important is
rapidity and accuracy in business arithmetic, es-

THE BUSINESS MAN

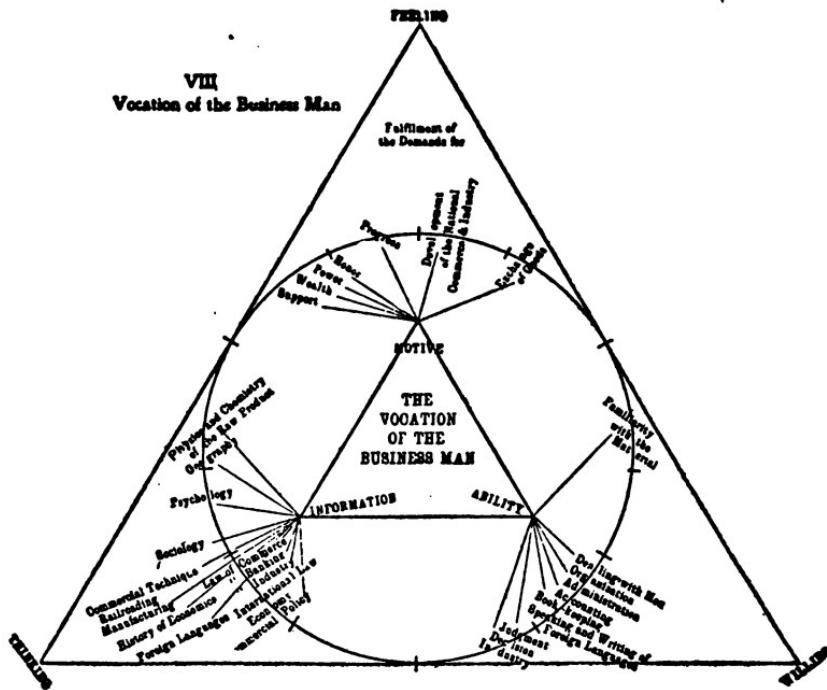
pecially in all calculations which refer to weights and measures, interest and accounts. We also demand the ability for bookkeeping, and, if possible, knowledge of shorthand and typewriting. All this is indeed not knowledge but ability. Only practical training can lead, for instance, to skill in detecting errors and false entries in the books. Whoever has received such training and has devoted himself to such study of commercial geography and commercial law, and so on, will have widened his horizon sufficiently to overcome the too frequent trivial view of business life and to have added noble motives and serious interests to the commercial work.

But all this may now be brought to increasing height and complexity. It is not only a question of specialization. Even on the low level, every-

Ideal Education for Business body in his business pursuits may come to give attention to some details which he finally masters better than others. This alone does not lift him higher in business life. What is really needed for the fullest success in the best sense of the word is broader knowledge and richer training and deeper motives. If we think of the ideal education of a man called for great business enterprises, we should demand a really thorough, technical, legal, economic, administrative knowledge and training. The law of commercial contracts, of business association, of banking operations, of industrial relations, of personal property, of public service companies, of agency and insurance, must be mastered.



VIII Vocation of the Business Man



THE BUSINESS MAN

The economic resources and commercial policy of the United States and the chief European and South American countries, the principles of commercial organization and method, the geographic conditions of industry and trade, the principles of banking and investment and corporation finance, of railroad operation and rate-making, must be thoroughly studied. But such thoroughness then always demands familiarity with the principles of the strictly theoretical sciences involved. There must be a background of historical knowledge and of the history of economics. General political economy and a certain amount of general natural science, geology, and geography, and even mathematics, and on the other side international and maritime law, must be somewhat familiar to him.

In a corresponding way the student must be trained in practical work; perhaps not in new lines, but in larger and larger tasks. The practice in ac-

Training of the Business Man counting must lead to problems in which resourcefulness and initiative find the greatest possible chances. The problems of organization and of law must be practically handled; practical situations must be analyzed; the modern languages, especially German, French, and Spanish, must be spoken and written. In short, the thousand-fold activity of the great business man must be acquired by an incessant training which can never be gained merely by the way, but which demands concentrated effort. And finally this whole work must be inspired by a far-seeing interest in the economic

THE VOCATIONS AND THEIR DEMANDS

needs of the time, by an enthusiasm for the progress of the nation and of humanity, by a social sympathy for the masses, by a scholarly interest in the economic problems, and by a desire to acquire wealth not only for one's own profit but in order to help the great problems of mankind. (Diagram VIII.)

XXX

THE TEACHER.

If farming and business are essentially men's callings, we have seen that teaching is the largest woman's calling, with the exception of those which,

Needs of the Teacher like the vocations of servant, waitress, and seamstress, need only small theoretical preparation. Of course, as we said before, teachers, like business men, may stand high or low on the ladder of their profession. But here also the principles are in reality the same. The teacher needs first of all thorough information. This study for knowledge's sake must, of course, be concentrated on those subjects which she is to teach, and it cannot be said too emphatically that this demand is to be interpreted in the broadest possible way. It is really not enough that the teacher should know only just what she has to teach in the classroom. No one is even a tolerably good teacher who does not draw from a deep reservoir of knowledge. She must know, in that special field which she teaches, a hundred times more than her pupils are to learn. If she is to teach arithmetic, she must have a real understanding of the principles of mathematics. If she is to teach the outlines of history, she must have read in college or in her own study the great

THE VOCATIONS AND THEIR DEMANDS

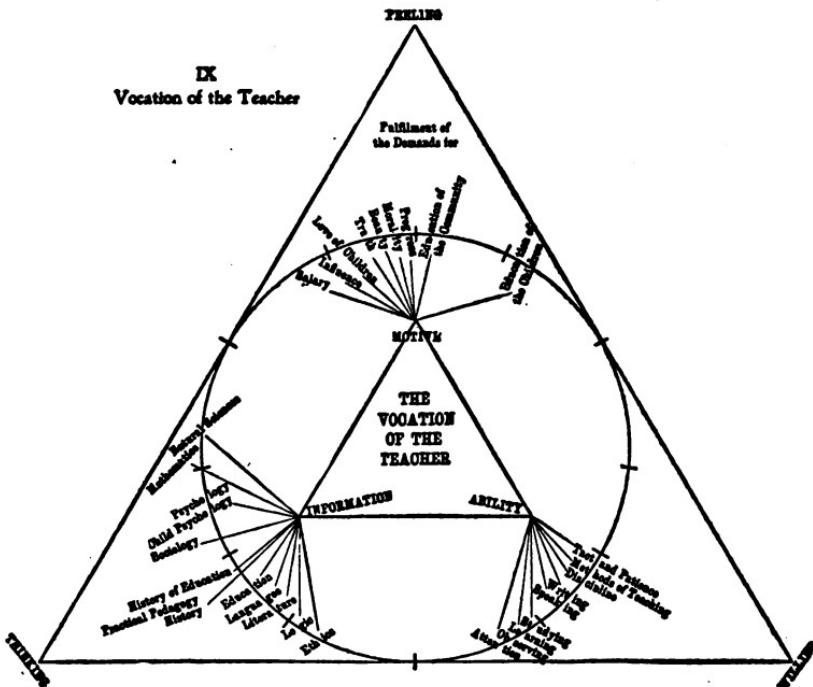
historical masterpieces with plenty of detail. If she is to teach Latin grammar, she herself must be familiar with the great works of Roman literature. If she is to teach the elements of natural science, she must have seen all the important experiments in physics and chemistry of which only a small part can be mentioned in the school laboratory. In short, she can teach in an intelligent way only if her knowledge is much richer than that superficial supply which is needed for the moment at the desk.

It is the greatest defect of the American school life that too many teachers are standing before their pupils with a knowledge which has been crammed the night before and which lacks a background of serious, thorough study. But while a thorough study of the material to be taught is the central information needed, it is not the only kind. Every teacher, whatever her subject, ought to study psychology and the theory of education, to be familiar with the mind of the child and with the best methods to influence it, and ought to study the history of education and the elements of logic and ethics, in order to have a foundation for the whole pedagogical work.

But all this again needs a still broader foundation. The teacher must be primarily a person of broad general education. No teacher can have that wholesome influence on the youth of the country, that influence which the nation must hope for from every true helper in school work, unless she is in intimate contact with the history of mankind, with the greatest works of literature and art, with the

IX

Vocation of the Teacher



THE VOCATIONS AND THEIR DEMANDS

fundamental laws of nature and society. In this way her information may include everything which is essential for equipping a broad and educated personality.

The activities in which the teacher needs to be trained also have the same manifoldness. On the one side we have the specialized training for the

Training of the Teacher handling of the matter which is to be taught. The teacher must understand, for instance, how to arrange skilfully the mass of the sciences which she teaches, to formulate the questions, to present the chief points clearly and forcefully, to arrange examinations, to correct the oral and written work of the pupils, and thus with trained mind to enable students to master the topics of the lesson. Moreover she must be prepared by long training to perform in an exemplary way all that the pupils are learning to perform. Her handwriting must be a model, and her skill in mental arithmetic, her expression in reading, her facility in translating, her clearness in interpreting, her beauty of language, must all be really worthy of imitation by every child. Together with this specific training must go, on the other hand, her own formal training in the act of teaching. Merely theoretical learning of pedagogy is not sufficient. The teacher must have learned the art of dealing with children, of being tactful and sympathetic, while yet serious and energetic, of keeping firm discipline; of being fair and just to the children; of being capable of keeping their attention awake

THE TEACHER

and yet of stimulating in them dutiful effort. She has to learn how to distribute her attention, and how to avoid fatigue, how to use her voice and how to save her energies; she has to learn not only how to adjust herself to the tasks of the whole school organization, but also how to fill her place in the community, how to use books to her own best advantage, and how to progress in her own home studies.

All this will be simplified and unified, if her knowledge and her training are controlled and held together by the right interests and motives. If the care for her salary is her chief interest, **Enthusiasm** her work will fall to pieces and will be fruitless. Her interest must lie in the **Needed** subjects which she is to interpret and illuminate in the classroom. She must love the literature or the history or the science which she is to teach; but what is still more important, she must be inspired by the noble opportunity of leading the promising youth into these broad fields of knowledge. The right teacher knows that it is the task of the school to make the pupils willing and able to devote themselves to the ideals of life, and no teacher can make the pupils willing for such an ideal task unless she herself is filled by a believing enthusiasm. The whole glory of knowledge and beauty and morality and religion must find expression in her personality. Her idealism and her love and sympathy for the youth must brighten the class-room without ever weakening the rigid discipline and especially the thoroughness and

THE VOCATIONS AND THEIR DEMANDS

accuracy of the serious studies. But this enthusiasm, too, must be nourished by special studies. It can come to the teacher only if she opens her mind to all that the history of civilization has brought to mankind, all that is noble and beautiful.

If we draw a diagram to characterize the requirements of the teacher's profession, we must draw it for one or another special branch of teaching. But we get a fair average if we think here only of the general teaching function, in which no specialization is involved but where all the subjects of the grammar-school are demanded from the teacher. (Diagram IX.)

XXXI

THE DOMESTIC WORKER.

We now turn to that occupation which, for women, shares with teaching the credit of being the most important, and which includes much the largest number—yes, enters to a certain extent
The Mistress of the House into every woman's life—the domestic activity. We have said that it has no place in the official statistics, because it is not directly a gainful occupation; and yet none is more gainful and more important for the economy of the nation in an indirect way. The time has passed when it seemed unnecessary to give serious attention to the preparation of women for domestic work and when the little knowledge of household economy was simply transmitted from mother to daughter. Our times acknowledge that domestic activity can pass through just as many stages as farming or business. We know that the highly cultivated mistress of the house fulfills her work better than one who simply follows her instinct, just as the farmer who works with the modern machines is getting better results than he who does the work as it was done a century ago. But here we find the same truth. Knowledge alone cannot bring that ennobling influence; it can be only a part

THE VOCATIONS AND THEIR DEMANDS

of that which demands training, and interest as well as knowledge.

The knowledge required for the ideal performance of domestic activities is indeed not small. We may again begin with that knowledge which may be called technical and specific. In the first place, we find the knowledge of the principles which control food and nutrition. The nature and the composition of the various food-stuffs, the changes effected by temperature or fermentation, the principles of diet, the relation of food to health, the economic side of the food question, are problems which can be studied in an elementary way, but which certainly also allow a most thorough and scientific treatment. Every step toward a more enlightened treatment will increase the usefulness of the information in practical domestic affairs. Secondly, we have the knowledge that refers to the home and the household. The construction and the surroundings of the house; the hygiene of the home; ventilation, heating, lighting, and water-supply; the home decoration and furnishing, from the artistic and from the sanitary point of view; the care of the house, including cleaning; the supervision of a well-ordered home, offer a distinct group of important problems for study. The knowledge of cloth and costume and textiles may be considered as attached to this group. Then we come to a third large field, the study of child life, the knowledge of the child's mental and bodily development and the study of the principles of sound

THE DOMESTIC WORKER

education and instruction. All these we rightly call practical applied sciences, but each of them rests upon theoretical knowledge. No one can understand the principles of food and diet without a serious acquaintance with problems of chemistry, physics, botany, bacteriology, and physiology. In a similar way the study of economics has to furnish the background for the household interests. The educational studies ought to be based on an earnest acquaintance with psychology, physiology, and ethics. And every one of these theoretical studies will be deepened by acquaintance with history. The history of domestic life, the history of education, the history of customs and habits and costumes will thus furnish an interesting supplement.

In intimate contact with this theoretical and practical knowledge, we find the technical and untechnical activities in which the students of domestic science must be well trained. Cooking

Training and sewing, housekeeping and market-
of the Do- ing, must be learned by doing—doing
mestic under careful supervision and with in-
Worker telligent guidance. The tasteful selec-
tion of the house furnishings, of the colors and designs in costumes, the care and organization of the household, the playing with children and taking care of them, the nursing of members of the family and the economic expenditures of the income, demand schooling by practical work. Yet here, too, no one reaches perfection who has training only in the specific abilities and is not efficient in the general mental and physical functions. A

THE VOCATIONS AND THEIR DEMANDS

training in patience and joyful willingness, in energetic activity and economic use of time, in earnest attitude toward the great problems of the home and in light attitude toward the superficial problems, in unselfish comradeship and in freedom from petty quarrelsome tempers, is still more important for every woman than the technical activities.

This ability to adjust emotion and will and intellect to the true needs of the happy and wholesome home life will reenforce the desirable motives with

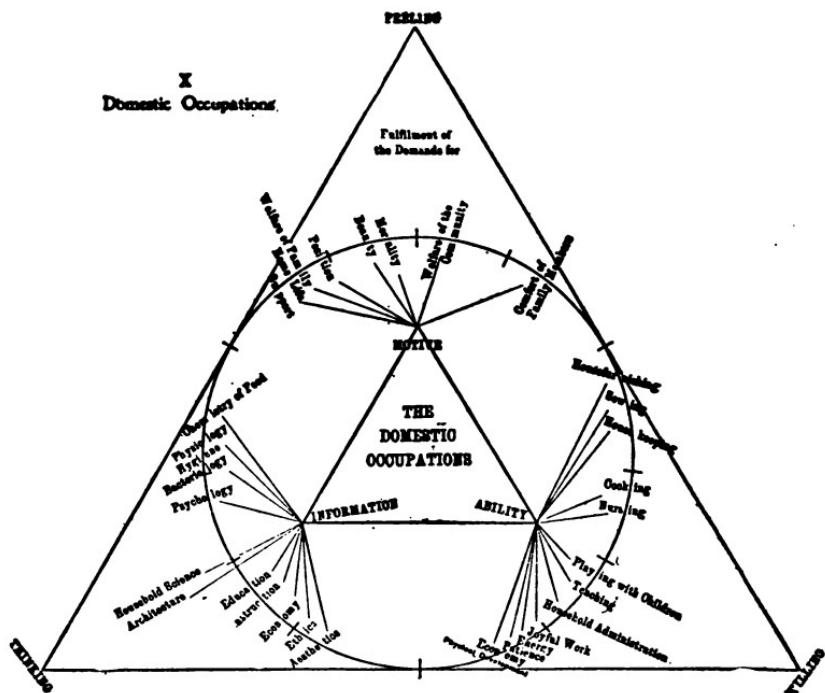
Ideals of the Domestic Life which the work is undertaken. Domestic activity is more often than any other occupation regarded as drudgery; and yet while it may be said that in a higher sense there is no drudgery in any vocational work, the activity of the housewife and housemother least of all ought to be derrogated in such a way. It may seem a hardship to spend one's time in baking bread and mending stockings, but whatever we do and in whatever place we stand, the elements out of which our work is constituted are in themselves shallow and disappointing. If we look at the wings of the butterfly under the microscope, every little grain which we see appears ugly and clumsy. Vocational life must not be judged from the trivial elements of which it is composed, but from the glorious totality. The domestic life, controlled by love for the family, by joy in the home, by wholesome pride and a moral attitude toward life, is an inspiration inferior to none. It is the ideal demand of humanity which ought to appeal to every woman's heart, demand-

THE DOMESTIC WORKER

ing that she give her best energies to the unselfish fulfillment of the family needs. The belief of mankind, in right and decency and beauty and truth, in harmony and religion, depends upon her blessed influence. At the same time the social demand of the community ought to appeal to her. The community will flourish only when the unit of the family life is held together, and this unit will crumble and fall asunder unless the untiring devotion of a patient and intelligent woman gives meaning to it. Finally the personal demand of the family members ought to appeal to her. Her parents, her husband, her sons and her daughters may seek and find satisfactions of their own; but none of them will attain a complete harmonious life unless the love of daughter, of wife, of mother, makes the home the one blessed spot on earth, where the turmoil of the world yields to the peace of love.

It is hardly necessary to point out that those occupations which are more or less specializations of certain features of domestic life may profit correspondingly by specialization in one direction or another. The woman who wants to become a professional cook will also find much advantage in the study of the chemical composition of food or the influence of bacteria or the physiological effect of the food on the body, and she, too, will deepen her understanding and make it practically more profitable if all this is based on some elementary knowledge of chemistry or botany or physiology. In a corresponding way the dressmaker may with profit ex-

Domestic Occupations.



THE DOMESTIC WORKER

pand her knowledge in the interest of her efficiency. On a higher level, of course, the same holds true for the kindergarten teacher and the nurse. For the kindergarten teacher the theoretical study of psychology and educational theory must stand in the foreground, and with them go a study of science and nature, and an intelligent understanding of animals, plants, minerals and physical processes and of history, art, and literature. The history of education, with special reference to the development of the youngest children before the beginning of school life, cannot be emphasized too much. Moreover, the psychological study must be connected with the thorough understanding of the functions of the body, especially the physiology of the nervous system and the muscle system.

But all these theoretical studies must yield the chief place to training in practical activities. The kindergarten teacher must learn the practical work

Kinder- of arranging games and telling stories
garten and singing songs; must develop initiative and originality in meeting the needs
Work in of the children. She must learn to
the Home teach the children work in sand and clay, pricking and drawing and sewing, intertwining and interlacing, cardboard pasting and basketry. The gymnasium work and music, composition work in line and tone and color, cannot be left out. In short, head-work and hand-work and bodily exercise have to be combined to make a young woman capable of rendering a service indispensable at a time when too many mothers are kept from the

THE VOCATIONS AND THEIR DEMANDS

education of their children. And again, all this has to be controlled by a motive of sympathy and love, by an enthusiasm for the happiness of those who enter the kindergarten. It is evident that self-discipline and sunny temperament, serious energy and tactful gentleness, patience and industry, must blend beautifully, if this ideal vocation is really to be filled in such a way that the needs of the community can be satisfied. (Diagram X.)

XXXII

SECRETARIES, LIBRARIANS, WRITERS.

Before leaving the occupations peculiarly suited to women, let us consider a few of those activities in which the various parts of private life are split off and independently developed. There seems to be a far-reaching agreement that a woman is more able than a man to fill satisfactorily the place of a secretary. The need for such workers is rapidly growing in the community. Success here, as elsewhere, depends upon the right blending of interests, knowledge, and training. The level of the position can be very different, so that much of the knowledge which is desirable for the most important places of this kind may appear superfluous in the routine cases. But real success will be secured just by that broad education which contains much more than merely those elements of knowledge and training which can be practically applied. The secretary needs the mastery of the English language. But here at once the right acquaintance with the language and the right feeling for style cannot be hoped for unless an intimate study of English literature stands behind them. Moreover, the secretary needs modern foreign languages; some German and French, and, if possible, Spanish seem highly desirable. In another direction the knowledge must cover economics and history. But in addition to

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these more general subjects, the secretary must be acquainted with her special fields of commerce and commercial law, business methods and accounting, and finally, if she aims at unity in her difficult work, some study of the philosophical branches of knowledge—sociology, ethics, and especially psychology—should be included.

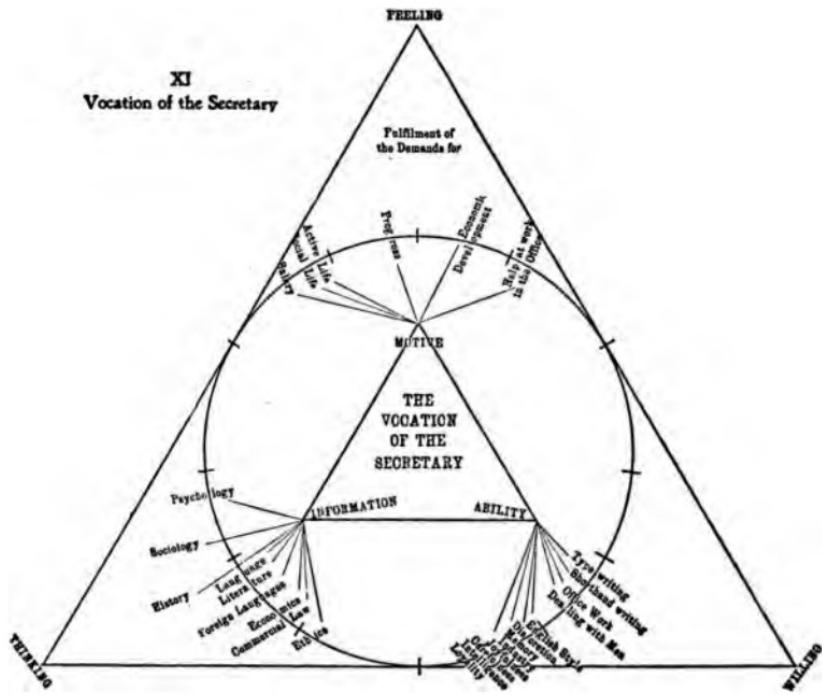
On the other side a long persistent training is demanded. Shorthand and typewriting are indispensable, while the ability to correct English texts

Training of the Secretary and to handle business papers are also needed. But these specific activities must be embedded in general powers which need no less conscious training.

No secretary is successful who is not trained in doing regular, industrious, patient work in a friendly spirit and with the appearance of joyfulness. She has to train her memory more than is required in most other professions, and must have the power of concentrating her attention to an unusual degree. It is a vocation in which slight mistakes through carelessness interfere more with success in a responsible place than in most others. Her versatility and her initiative, her skill in finding the way out of complex situations, and her instinct to anticipate the intentions of her employer, determine to no slight degree her efficiency.

This training and this knowledge must be bound together by a true, warm interest in her work. The motive power here, too, can be much more than the mere private business. It ought to be the living interest in serving the great world's work. She can

XI
Vocation of the Secretary



THE VOCATIONS AND THEIR DEMANDS

feel that she contributes by her skill and intelligence to the smooth progress of the work which mankind has to do daily. But while she is inspired in this way by an ideal belief in the value of the work, she will not forget that her chief virtue is faithful loyalty to the private interests which are confided to her. Discretion is thus, after all, the central virtue of the secretary, and the interest in the woman or man for whom she works must be the living motive for her responsible activity. (Diagram XI.)

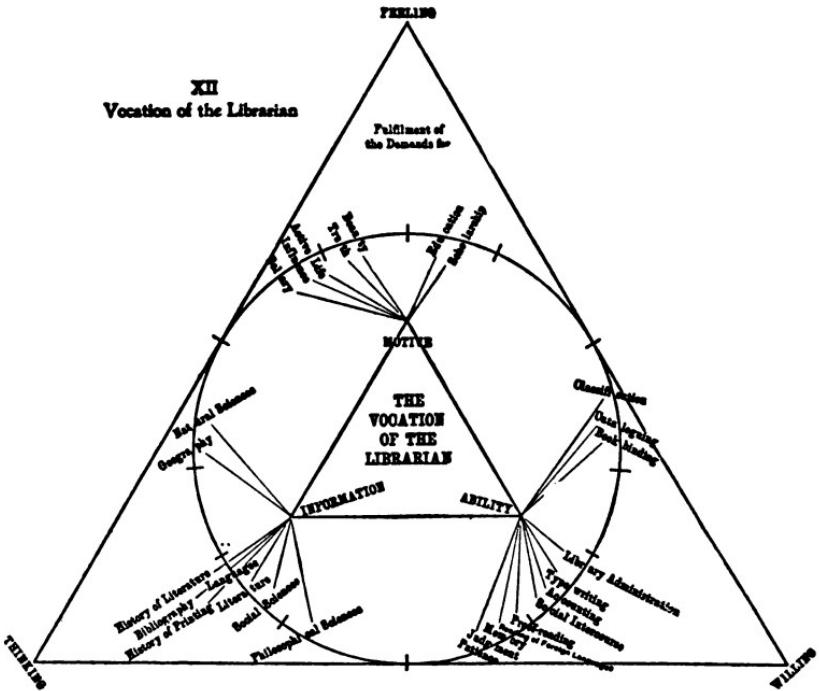
We may consider the vocation of the librarian as a work which also seems to have a fair chance of getting almost entirely into women's hands, and for which their personal qualities pre-eminently predispose them. Sufficient emphasis cannot be laid on the broad general education for this occupation. The librarian ought to be in contact with every field of knowledge. History and literature, natural sciences, philosophy and social sciences, ought to be sufficiently familiar to him so that he may grasp the relations of any book to the whole human knowledge and interests. A fair reading acquaintance with the modern languages and, if possible, with Latin, too, is here a direct necessity. A theoretical study of the history of libraries and of bibliography, business methods and accounting, statistics and the principles of cataloguing, the details of printing and bookbinding, library administration, and the prin-

SECRETARIES, LIBRARIANS, WRITERS

ciples of the appraisal of books belong to every librarian's equipment. But no one is a good librarian through mere knowledge. Years of practical training for the technique of the librarian's work are needed. Classification of books and cataloguing, seeking references and the selection of books, indexing and shelf-listing, have to be practiced, and the whole administration of a library and its adjustment to the needs of the community have to be mastered by practical training. Typewriting, too, can hardly be dispensed with, and some practical understanding of proof-reading and binding is highly desirable. Is it necessary to point out that the ideal interests of this occupation ought to be the predominant ones? The love of books and the enthusiasm for the broad education of the community, the belief in the splendid work which the library can do for the uplifting of all classes of men and women and children, must give the real meaning and purpose to this vocation of daily increasing importance. The librarian's work, and his intelligent initiative and his enthusiasm, have not seldom changed for the better the spirit of a whole community. (Diagram XII.)

From the librarian there is only one step to the author and writer, to the journalist and literary worker. Of course it would be in vain to propose one formula for the needs of the literary writer. There is no field of knowledge to which his interest may not turn. The nearest approach to a certain

XII
Vocation of the Librarian



SECRETARIES, LIBRARIANS, WRITERS

uniformity of requirements might be found in the work of the journalist. The incomparable responsibility which rests upon the journalist in a country like ours, in which everything is controlled by public opinion, has suggested in recent times an increasing attention to the needs of this vocation. It has suffered too much from the carelessness and thoughtlessness with which it has been chosen. From the fact that there is no preparation necessary in order to supply some current news to a local paper, the conclusion has too often been drawn that a journalist and newspaper man or woman can drift into that calling without any hard work and without any proper qualifications. There is no column in the newspapers or the magazines which does not somehow help to guide public opinion for better or worse. No one can guide the masses toward progress by the printed word who does not see the life we live and the world which surrounds us in right perspective. A thorough knowledge of history and economics and the elements of science, a living, warm acquaintance with the best in literature and art, knowledge of geography and the elements of law, a serious study of politics in their deeper meaning and not in their superficial aspects, and knowledge of modern foreign languages, ought to be the foundation for the journalist's work.

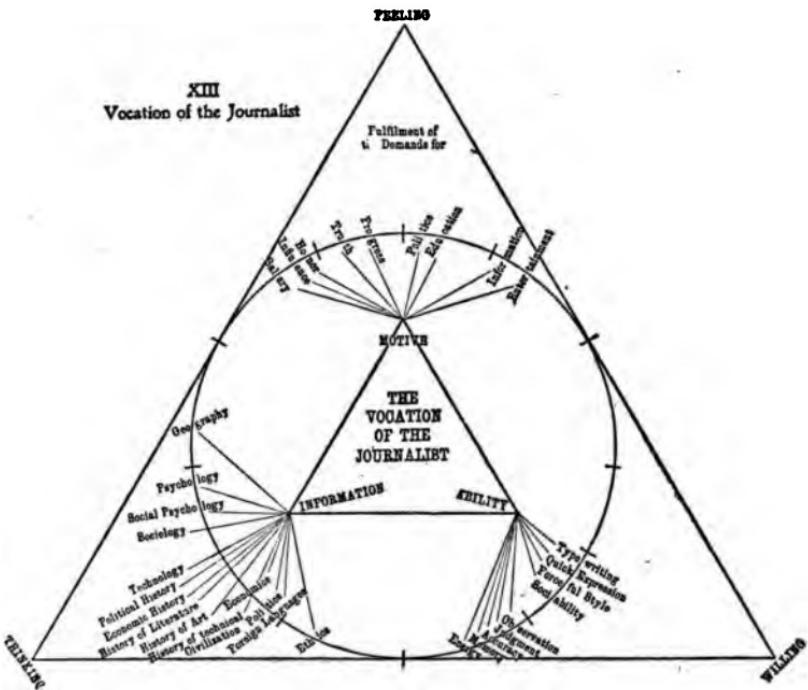
In a corresponding way the practical training ought not to be confined to the usual technique of the reporter's desk or the editor's office. The community needs men and women who have learned not only to spell accurately and to polish their sentences

THE VOCATIONS AND THEIR DEMANDS

but to have thoughts and to express them in simple, beautiful and forceful language. A persistent training in composition, in faithful descriptions, in responsible appreciations, in suggestive criticisms, and in inspiring appeals will count throughout the career. Of course the writer must also have learned to express himself quickly; the printer is waiting. He must know how to adjust himself to the given space, he must know how to reach his particular public, he must know what he may presuppose with them and how far their interest reaches, and he must be familiar with the technical side of the make-up of the magazine or newspaper. And if he takes the right attitude toward his work, he will never forget that his most serious duty demands a training in accuracy and thoroughness. Superficiality is the one great sin in our American life, pervading the most different fields of activity and devastating large realms of social interests. This spirit of superficiality is too easily fostered by the hasty work of irresponsible writers. The thoroughness of those who shape public opinion by their printed words will decide to a large extent the spirit of our national future.

The motives of the real journalist show again the complete blending of personal, public, and ideal interests. It is a splendid, fascinating career, from the task of the young reporter to the masterly work of the great editor. The feeling that he speaks through the organs of publicity to the unknown masses be-

XIII Vocation of the Journalist



THE VOCATIONS AND THEIR DEMANDS

comes to him a stimulus and an inspiration. But this fuses with a belief in the high importance of the right guidance of public opinion. And finally this is united in an intellectual interest in the historical and economic, political and legal problems involved and in an emotional interest in the success of the principles for which he is fighting. (Diagram XIII.)

XXXIII

THE PHYSICIAN.

The vocations which we have sketched, with their requirements, are all of such a kind, excepting the engineering vocation, that no line of demarcation separates the high-class performance of functions from the untrained,

Careers scholarly, unskilled, instinctive activity.

Demand- There is nowhere a clean boundary line
Demand- in the vocation of the teacher, the
Care- farmer, the business man, the house-
ful Study wife, the journalist, and so on, between

those who manage to go on with their ordinary common sense and the odds and ends of practical experience, and those who have the culture, erudition, training, and schooling of a thoroughly conscientious preparation as the foundation of their work. We may now point to a few special examples of those professions which make persistent study an absolutely necessary condition. The lawyer, the physician, the minister, the architect, the scholar are impossible without specialistic training.

It is true that it may appear as if that is not entirely the case regarding the service of the physician. There are not a few in the community who claim to heal diseases without ever having devoted themselves to a systematic study of the body and its

THE VOCATIONS AND THEIR DEMANDS

abnormal states. But we have no right to acknowledge them as belonging to the class of physicians.

Mental Healers They may make use of the fact of which the savages and the primitive peoples of all times have made the fullest use, that a suggestion given to the mind can have strong influence on the nervous system, and can overcome for a while certain disturbances and bodily troubles. But as such dilettanti healers have no ability to discriminate between those diseases of nerve origin which are accessible to mental influence and those which are beyond the influence of the mind, they lack the essential qualification of the medical profession. All true medical help must begin with the most careful analysis of the symptoms and with a diagnosis of the disease. Only the learned physician can hope for success in this.

Our time is rapidly recognizing the fundamental importance of a broad general education for the physician. It is not by chance that the leading

Degree Necessary for Entrance medical schools of the country, Harvard and Johns Hopkins, now begin to demand the bachelor degree of a reputable college as an entrance requirement. The overwhelming majority of the medical profession to-day cannot think of such a long period of general preparation without the whole country trying to raise the level. Moreover, there is agreement that this general education, in any case, must include physics and chemistry, botany and physiology, and general biology.

THE PHYSICIAN

With the entrance into the medical school, begins the specialization on the study of the human body. The study of the structure of its various organs, that is, anatomy; the microscopic study of its elements, that is, histology; the study of the functions of the organism, that is, physiology; the study of the disturbances of the body in illness, that is, pathology; the study of the disturbances of the structure, that is, pathological anatomy; the study of the various diseases, their symptoms, their development, their treatment; the theory of the various therapeutic agencies, that is, the clinical studies—all these must be carried on for years of faithful devotion. Every one of these sciences is divided into branches. Anatomy is composed of osteology, the science of the skeleton; neurology, the science of the nervous system; myology, the science of the muscles, and so on. But more important is the subdivision of the study of the diseases and the clinical work. Each group of organs demands particular study, and no one can specialize in every direction.

Specialists on Surgery He who devotes himself to ophthalmology, the study of the diseased eye, cannot easily be also a specialist in laryngology or rhinology, the study of throat or nose, or otology, the study of the ear. The physician who specializes on the peculiar diseases of woman, the gynecologist, or on the diseases which demand operative treatment, the surgeon, cannot be a specialist on the heart or stomach, or in dermatology, which treats of skin diseases. But a certain acquaintance with

THE VOCATIONS AND THEIR DEMANDS

all fields is demanded from every true physician to-day and the requirements of our time include no less psycho-pathology, which deals with the diseases of the mind, and hygiene, which deals with the prevention of disease.

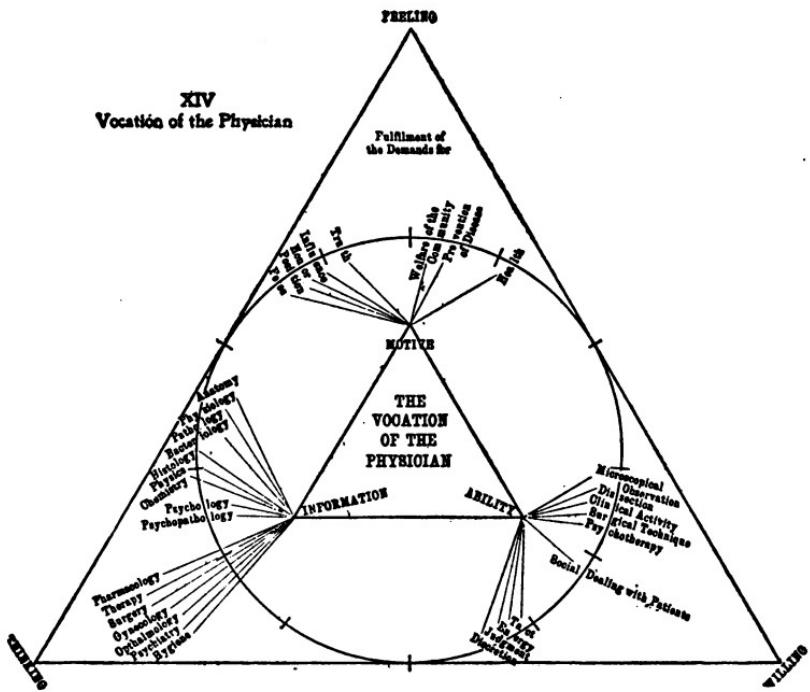
The scientific physician studies not only disease and the theory of its treatment, but he goes back to those scientific studies which really give the ex-

Laboratory Work explanation of the disturbance and of the means for its removal. He learns not only about infectious diseases but he bases that knowledge on a thorough acquaintance with bacteriology, and in a corresponding way he seeks for his study of the diseases of nutrition a foundation in the laboratory-study of physiological chemistry and for the action of the drugs in the laboratory studies of comparative therapy.

No profession demands more practical training to complete the theoretical knowledge than that of the physician. From the beginning, his study of

Training of a Physician anatomy must be combined with a practical training in dissection and his microscopic dissection of the body must be supplemented by exercises in microscopic observations. In the same way his clinical studies demand at every step practical training. He must learn percussion and auscultation of the chest in order to examine the heart and lungs. He must learn the thousand technical methods for diagnosis and observation and must train his ability to recognize disease from certain

XIV
Vocation of the Physician



THE VOCATIONS AND THEIR DEMANDS

characteristic combinations of symptoms. Then only begins his training in therapeutic efficiency. He must master the surgeon's knife and the electrical apparatus, he must be able to write prescriptions and to treat the patient by his suggestive influence, he must know how to pump out the stomach, inject morphine, set bones, and dress wounds; in short, he must be master in the numberless practical activities that have to be learned by imitation. No one should hope for true efficiency who does not combine these technical powers with unusual abilities of character and will, of effective service and energy, of intelligence and initiative and practical human sympathy. This corresponds to the manifoldness of motives which enter into the physician's calling. The greatest and the most central of them remains the enthusiastic longing to bring relief to suffering mankind. Yet the finest success cannot be enjoyed unless this emotional motive is most intimately intertwined with an intellectual interest in the theoretical problems of practical medicine. Each case, however the physician may sympathize with the suffering patient, is a fascinating problem for his undertaking. A true physician must be both a friend of mankind and a scholar. (Diagram XIV.)

XXXIV

THE LAWYER AND THE POLITICIAN.

The same holds true of the lawyer's profession. True efficiency depends upon a blending of personal, public, and ideal motives. There is a general complaint, and probably not without reason, that the legal profession has become too commercial, that the lawyer, instead of being a defender of justice, has become a business man; and that this tendency has increased in spite of the fact that the level of legal education has been greatly raised in recent years. It seems that the legal complexity of the business corporations in their most modern forms is responsible for this habitual affiliation between law and finance. What is needed is evidently a reenforcement of the unselfish motives which ought to inspire the lawyer at his work, and which, after all, give true meaning to his important function. The true lawyer tries to serve justice as loyally and objectively as a judge does. His function is not to see that wrongdoing goes unpunished. The true lawyer is inspired by the ideal ethical impulse toward the satisfaction of the demand for justice; and with this goes a further ideal interest, the logical interest in the fascinating juristic problems. Every case, even the least important, opens wide

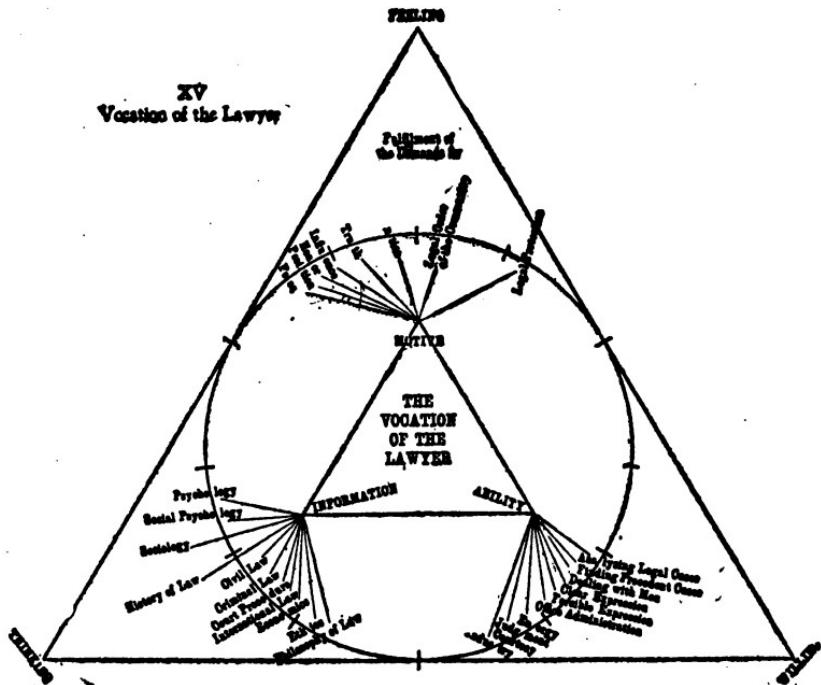
THE VOCATIONS AND THEIR DEMANDS

legal perspectives and is connected with important theoretical issues. Every good lawyer ought to be a disinterested juristic scholar, well versed in the history of law, in the principles of law, in economic and social conditions, and in sociology and ethics.

These ideal motives of juristic interest and of belief in the triumph of justice are intertwined with the public interest which demands that the laws of the state be carried out impartially. The **The Defender of Laws** lawyer, while he may be the defender of individuals, ought to be at the same time the defender of the law, that is, of the foundations of the state. Finally, the lawyer must be interested in the individual difficulties of his client, to which he must subordinate all his energies and his knowledge, serving at the same time his personal interests in securing his fees. The four groups of demands which are to be satisfied in every vocation are intimately connected in the legal profession, and work together to give impulse and energy to a calling which has attracted perhaps the strongest minds of the nation.

The student who has laid the foundation of a broad education with emphasis on history and economy will then build up the structure of his legal knowledge. The approach may be through history of law or through study of precedent cases. His information must cover civil law and criminal law and court procedure, constitutional law and international law, and finally the theory of jurisprudence. The demands of his practice will

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Vocation of the Lawyer



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naturally focus his interest on the civil law, and therefore he needs a thorough study of the law of contracts and property, insurance and bankruptcy, damages and patents, corporations and partnerships.

But the theoretical knowledge will be most intimately connected with the practical training. It is characteristic of the leading law-schools that they

Legal Training prefer more and more to put the whole education of the young lawyer on a foundation of practical study of real or fictitious cases, forcing on him from the start the practical attitude of dealing with concrete legal situations. He must learn to find the essential points and to relate them to preceding cases and to demonstrate the correctness of his view. The work of the lawyer is an art of which the mere technique of the speech to the jury is only the most visible and by no means the most important element. The whole procedure of law demands a complicated technique to be handled with the utmost skill, if the rights of the client are really to be carried to victory. But the specialistic

Legal Skill and Character technique must be supported by general powers and abilities which demand no less systematic training by a long education. The lawyer must be more than a lawyer. His upright will, his indefatigable energy, his courtesy, his power of clear logical expression, his sound judgment in human affairs of all kinds are needed, if he is to succeed. (Diagram XV.)

THE LAWYER AND THE POLITICIAN

The lawyer's profession is often, perhaps by far too often, the preparation for the political honors, and if we are to speak of the training of the politi-

The Road to Politics cian in a higher sense of the word, we feel almost inclined to identify it with the training of the lawyer. But in itself that is not necessary and not even desirable. The greatest living Ameri-

can politician showed the way to the Presidency by a road which from an ideal point of view would be the safest—the road of historical studies. To judge on public affairs, to guide them and to help on to real progress, nothing indeed is more important than to see human affairs, the state and its institutions, the parties and their strifes, the hopes and the fears of our time, in the historical perspective. We must understand how everything has been developed in order to judge it soundly. The public problems of our time, however, are so completely permeated with economic and with legal questions that it is not surprising if, on the whole, the great students of political economy and the wise judges stand in the foreground. But whatever the ways of approach to political activity may be, it is clear that ideal motives must give meaning to the vocation.

The Right Ideal It is true, there is no lack of egoistic motives in politics, even if we abstract entirely from those which are not legitimate. There is a chance for paid positions and much more a chance for personal honor and satisfaction of ambition; and yet there remains

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a great disproportion between the effort expended and the existing labor on the one side and the personal gain on the other. The only thing that can give to politics the value of a true vocation, and attract numberless workers, is the hope of serving the principles which they have chosen to fight for, to defend what seems to them the right ideal, to toil for the welfare of the community in order that the nation may glory in its true success. Democracy opens wide the doors for everybody to enter the field of such labor, and men with most different preparation, with narrow and with broad knowledge, with small and with excellent training, may harmoniously work together.

But those who seek the fuller information and the better training in the service of political ends may not doubt that everything is helpful that works

toward general education, and on this
The Politician's Training foundation everything that affords a systematic acquaintance with political history and with political economy, with constitutional law and international law, with sociology and geography, and with the special conditions of agriculture, industry, and commerce. Correspondingly the politician's training ought to be of a broad and significant kind. The temptation is great to take the mere external technique of party life, from ward politics to federal politics, as essential; and it is true that a training in the small ways and means is indispensable for the practical politician. But that which marks the man and finally gives success to

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his career is after all the training in the ability to recognize the important tendencies of public opinion, not only to crystalize but even to foresee the meaning of the popular will, to stir up new problems, to see great things great and small things small. The ability to handle men and to select them and to deal with them skilfully, to reach the ear of the masses, to take defeat in a dignified way and victory in a modest way, and above all to be loyal to one's self and to be ready to make sacrifices for one's convictions, to be a stanch friend and never a malicious enemy, are after all the more important powers of the politician, and still more of the true statesman.

XXXV

THE ARCHITECT.

To glance at the artistic side of life, we may turn to the vocation of the architect. It seems as if with such decidedly practical occupation the actual training would be all essential. Yet this case is ultimately no different from the engineering profession, of which that of the civil engineer was analyzed by us as a typical example. We saw there the importance of theoretical studies. We find the same to be true in the case of the architect. Even his technical work demands a systematic study of mathematics and physics, applied mechanics, and to a certain degree chemistry, hygiene, and mineralogy. But here we find, on the other hand, the absolute need of the aesthetic stimulation and cultivation by the study of history and especially of the history of art. Yet this history of art can never be separated from aesthetic interest in literature. The architect must further be in intimate contact with the work of foreign countries, and therefore needs the study of the French, German, and perhaps of the Italian languages. Finally, in his work, he stands so near to the work of the engineer that certain important branches of civil engineering and

THE ARCHITECT

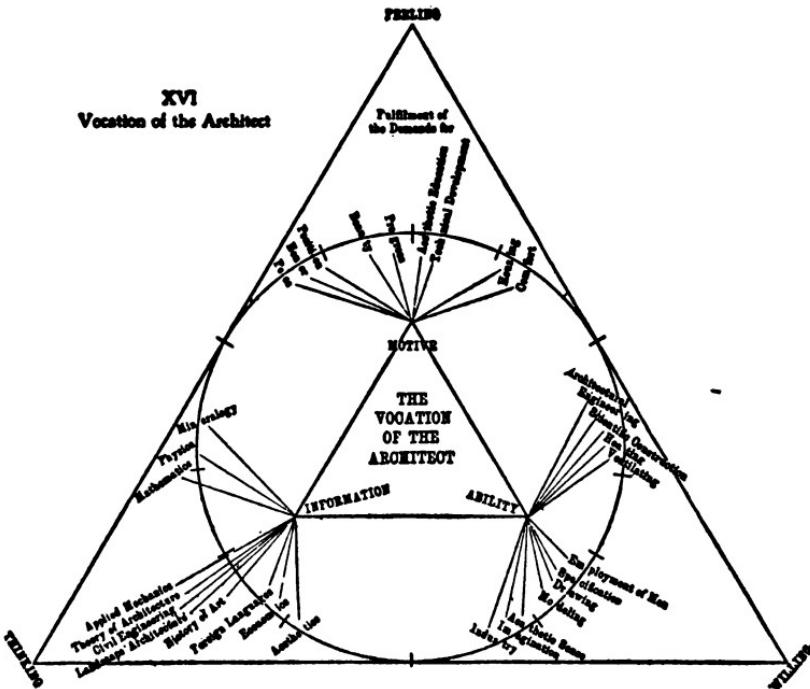
even of electrical engineering, and, above all, of landscape architecture, are highly essential.

The practical training corresponds to all these groups of interests. Drawing from casts and from life, and decorative figure-design; use of water-color, pen, and pencil; modeling and color rendering, have to accompany his whole education. In the other direction, scientific construction and perspective, heating and ventilating, specifications and selection of stones and architectural engineering, are as important as the more aesthetic powers and demand study and training. But all these activities must be guided by a sense of beauty, by a constructive imagination, by a feeling for the needs of the time, by a sociological understanding of the architect's function—in short, by a high cultivation which demands more than a mere specialistic training and which is to take its energy from all sides of human life.

The motives of the architect, besides a desire for personal gain and honor, are, in the first place, aesthetic ones. Every new task is a new problem in

Beauty and Fit-ness art for him to solve. A practical demand is to be fulfilled in the spirit of beauty. But the demand would not be fulfilled if the solution were not in every way useful and adjusted to the practical needs. The aesthetic interest must, therefore, be joined with the desire to give to the demand for shelter an adequate fulfillment. Not every one is called to build cathedrals and capitols, or even orna-

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THE ARCHITECT

mental hotels and railway stations, theatres and museums; but there is no cottage so small or stable so humble that the architect cannot approach with fresh mind the problem of combining perfect satisfaction of the practical needs with an ideal satisfaction of the demand for beauty and social fitness. (Diagram XVI.)

The vocations which we have chosen from various fields are not intended as more than examples. We might have substituted for them the professions of the minister or of the soldier, of the miner or of the insurance agent, of the painter or of the composer, of the scholar or of the inventor, but the only essential point was to illustrate our principle. As soon as the principle is clear, the application for other vocations cannot offer any difficulty. All that is needed is to see clearly that the understanding of the vocational life in every case demands the threefold insight into the Motives, the Information, and the Abilities.

PART V.—STUDY.

XXXVI

THE PERSONAL DISPOSITIONS AND TALENTS.

We have now answered as well as we could the one great question which is the topic of this book: What are the conditions and requirements for a successful vocational life? We have found as answer that every single vocation, low or high, simple or complex, demands three different and to a high degree independent factors. Each vocation demands a certain Knowledge; each one demands a certain Ability to act; and each one demands a certain Interest. Information, training, and motive have to work together in order that vocational work may become possible. Moreover, we recognize that each of these three factors contains in itself a great manifoldness. Knowledge of most various kinds, abilities in most different directions, motives from most different spheres of our interests, are intimately combined. There remains only one closing consideration: How may we best acquire such information, such training,

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and such interest? In other words, what are the best ways to attain a successful vocational life?

From the start we are at least protected against a narrow one-sidedness. We now know that any one of these three factors, or even two of them, would be entirely insufficient to build up a life of occupational usefulness. No one should fancy that knowledge alone can be a sufficient preparation for any life-work. The rôle which knowledge is to play is a very different one in different occupations. In the work of the college teacher or of the engineer it plays a greater rôle than in that of the merchant or of the farmer, but there is no organized life-work in which it is sufficient simply to "know" a mass of things. The ability to perform certain actions, and the living, vivid interest, as motive, remain essential factors in every occupation. On the other hand, no skill, no technique, no training and no ability can be enough to make a man's career successful. He needs also information, however practical his vocation may be.

Mere interest alone is never sufficient. Without solid instruction and systematic training, good-will alone counts for little. For a long while it has been

a kind of dogma, widespread throughout the nation, that any man can do anything. The pioneer life of America and the democratic organization of society have naturally favored and strengthened this popular belief. The party system made it necessary that men of any calling, without any special preparation, should be asked

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to undertake complex and important tasks in public service, from the smallest postmastership and school-board position to the places of cabinet-minister and ambassador. This has secured a certain optimistic feeling all around. If a place is to be filled, if a task is to be done, nothing else is necessary but a bright Yankee who is willing to undertake it. And from the public life this feeling has pervaded the whole private life of the community. The boy and girl who go to the factory or become artisans, who enter business or other vocations, have lived in the belief that their good-will was enough and that they would learn by the way everything necessary to know. The business man began with sweeping out the office, and felt sure that it was the right way to climb up to the place of the bank-president. And the time does not lie far behind us when the prospective lawyer or the prospective physician made his so-called studies in a haphazard way by attaching himself to an older lawyer or physician.

But a serious reaction has set in throughout the country and the American nation has come to the same points of view which for a long time have pre-

Training vailed in the older countries. In public
Is Neces- life the civil service has been developed
sary into a regular career, in which men and
 women are carefully prepared for their
 tasks in the interest of the community.

Above all, the expert has gained in importance in every field of public and private life. The questions of education are handed over to the superintend-

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ents, the questions of hygiene are entrusted to the sanitary experts, and numberless problems which in earlier times the common sense of the politician had to settle are now left to the judgment of the expert engineer. Long years of study are expected from the lawyer and physician, and a rapidly growing movement supplies the country with trade-schools and vocational schools of all kinds for the laborer and artisan, for the business man and the manufacturer. In short, the happy-go-lucky methods of simpler life-conditions have had to yield to the methods of careful specialistic training under the greater pressure of our modern affairs. The community began to see that this innocent reliance on mere good-will without well-planned preparation

**Knowl-
edge and
Training
and
Motive** was an inexcusable waste of public means and of public energies. It was a waste like that of the natural resources against which the public conscience has been aroused in our day with such tremendous power. The shameless burning of the forests at last appealed to the emotion of the community. This public feeling has now also turned against the reckless reliance on mere good-will for vocational life. The country is beginning to see that no good intention can be in itself a substitute for thoroughness of knowledge and thoroughness of training in action. There are too many things in the world which can never be done by mere common sense and cleverness. We need, first, the best possible

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information; second, the greatest possible training; and, third, the highest possible motives.

If this combination is to be secured in the greatest number of cases, the community must discourage the belief that everybody can prepare himself for

Personal Tendencies every vocation. The idea that everybody can do everything without any special training and preparation is simple folly; the idea that everybody can reach out for everything by earnest study is morally excusable but practically is perhaps no less harmful. It is an intolerable waste of human energy if the community neglects its duty of securing the finest possible adjustment of the in-born talents and dispositions of its various members to the various vocations. Everybody knows that the best will and the hardest studies and the longest training cannot produce a composer of operas and symphonies unless the man had from his boyhood a distinct talent for tones and music. It is superficial to think that the situation is fundamentally different with other useful occupations. Of course, any one can be trained by persistent effort and serious study to become finally some sort of a lawyer or physician, or teacher or banker. But the man who is born with the instincts of a skilful surgeon may become a miserable banker or lawyer, unsuccessful in his career, condemned to mediocrity, and a source of disappointment to himself, to his friends, and to the community. It is the clear duty of every one who seeks a vocational life to secure

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the best possible insight into his own personal talents and tendencies, and thus by his choice of occupation to prepare for his own fullest success.

As we said at the very beginning of our discussion, too many boys and girls to-day drift into their life-work under the influence of petty, haphazard motives. An advertisement in a newspaper or the superficial advice of a friend is too often decisive of a whole future, without any scrutiny into the mental and physical conditions which are favorable or unfavorable to a line of activity.

Such an analysis of the boys' and girls' mental equipment is essential for every one of the three decisive factors: for knowledge, for ability, and for motives. Everybody knows that it is just the better pupils who are unequal in the various fields of the school work. One who is excellent in mathematics may be rather poor in languages, one who grasps natural science most easily may show no memory and no real understanding of historical development. There is no harm in this unequal level of school work, but there is much harm in a life-work based on a low level of intellectual ability. Every one ought to be careful to make his start where his natural abilities have given him the best chances. If he is especially gifted in mathematics and physics, he ought to follow, for instance, in the line of the engineer, and ought not to be carried away by the chance fact that some one opens to him an opportunity for quick little returns in some business or other.

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Men are unequal in their native ability and we are too easily inclined to neglect these individual differences. For instance, it is enough to point to the extreme differences of memory.

Variations in Men's Minds There are people who have an excellent memory for faces and for anything they see, and a miserable memory for names and everything they hear, and

again others whose chief strength of memory lies in the field of movement. Such variations count much in different phases of life-work. There are minds which have a tendency toward general ideas, and others the strength of which lies in the distinct observation of special facts. There are minds that learn especially well the knowledge expressed in words and sentences, and others that hold more firmly the real things. If you show a picture to a number of boys and girls, there will be some who later remember well the colors in the picture, some who rather remember the forms, and still others who have forgotten both forms and colors and who distinctly keep the meaning of the picture. All such little variations of mental tendencies indicate that we have to count with fundamental differences which ought to be considered carefully in selecting the life-work. We do not mean that

Psychological Examinations every boy or girl ought to make psychological experiments in order to find out his particular strength and weakness of mind. It may be, and it is surely to be hoped, that in future times the vocation bureaus of municipalities will provide

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even these more subtle examinations, but at least in a rough way the attention of every one ought to be called to the importance of such psychical factors. Especially the parents and teachers ought to watch carefully the natural gifts and intellectual aptitudes. It is a pity to waste the effort by unsuccessfully cramming with studies for one profession when the studies for another profession would have been easily mastered.

This situation repeats itself in the question of training. Every one knows that a man must have a special talent to become a virtuoso on the piano,

Talents or a great athlete, or a great singer.
Determining Ca- The skill and the strength and the con-
reers trol of the muscle system which are
 needed for such performances cannot
 be acquired by everyone, even with
 any amount of training. But this is
also true of every possible activity. A man who has
no talent for fluent speech ought not to choose a
career in which his oratory is of decisive import-
ance. A man who has no skill in the adjustment of
his movements would be unwise to select the work
of an artisan in which great skill is needed. If a man
is slow in his reactions, he should avoid the rôle
of a chauffeur, even if he is otherwise interested in
motor-cars. And if a woman is slow in the whole
rhythm of her nervous system, she should not seek
the occupation of the stenographer and typewriter,
even if other sides of that career attract her.

Certain professions need an amount of physical
strength for which no mere training can be sub-

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stituted, and others, again, demand such physical or mental endurance that no one can acquire them merely by good-will. Certain brains possess that power of endurance and of industry as their inborn equipment, while others lack it. These latter get fatigued and exhausted after a few hours of concentrated work, and it would be simply useless to stimulate them by admonition. Some men are born with a talent for industry, just as some are born with a talent for poetry. When Edison was asked whether in any other line of work he would have been just as successful as he has been in electrical engineering, he answered: "I do not know; but I know at least that the other kind of work would also have had an eighteen-hours-a-day try." Very much of that which we admire as genius lies in this power of certain brains to persist in concentrated work without loss of energy and without flagging of interest. Even our attention shows great individual differences, and different vocations make different appeals to this power of attending. It is a mistake to neglect such inborn variations. A life-work which demands one kind of attention may be a source of happiness to the woman or man who is equipped by nature with that particular type and would be constant drudgery to another person who has the opposite type of attention. Seamstresses are persons who are usually either perfectly happy in their humble calling or completely unhappy in it. It is probably primarily a question of whether their inborn type

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of attention is in harmony with that kind of work or whether it interferes with it.

Let us not forget that, in a similar way, the third factor of a vocation—the interest and the motive—also demand a special natural inclination; and that it must certainly be unwise for the Three Groups of Men community to tempt anyone into a life-work which does not appeal to permanent interests, even if the necessary knowledge and ability have been acquired. The men who are interested in the handling of physical things, those who are interested in the dealing with their fellowmen and those whose minds tend toward the service of ideals, are three distinct groups which nature has separated. We have no right to say that one group is better or more important or more dignified than another. They all have genuine interests which stand in contrast only to those who drift through life without any serious motive to action. But while each group is equally important, it is the duty of society to provide that each individual finds his life-career in the direction in which his particular group of interests is of decisive value.

The boy whose whole inclination turns toward influencing other men may become an excellent salesman or lawyer or politician, but he would prove but a miserable mechanic or farmer or physician. These various groups of interests often show themselves early, long before special talents and gifts and abilities can be dis-

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criminated. The child's play, however much it may be mere imitation, is an imitation with selection. The child selects that which appeals to his natural interests. The traditions of the family, the influences of the social surroundings, the impressions of early youth, the successes in the first steps of life, are all naturally of significance for the development of these interests; but they are fused with inborn tendencies.

Even the emotional disposition and natural tendencies of character must not be underrated in their importance for the success or failure in various lines of life-work. The scholar does not need the same social abilities which are helpful to the traveling salesman; and the farmer does not need those traits of character which are indispensable to the lawyer. To say that a man ought to change his disposition and temperament in order to succeed in a certain line of work is superficial advice. We may learn to suppress undesirable features of our emotional life and artificially to reinforce the better ones, but that alone cannot change the emotional impulse. The whole structure of our nervous system, of our blood vessels, of our glands, of our whole bodily apparatus, is responsible for those differences, and will facilitate or hinder our success in certain lines of vocational work. A woman who has not a natural sympathy for children will never be successful as a nurse or as a teacher; and a man who is born a physical coward will find many lines in which nothing interferes with

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his success; but he ought not to choose the career of the soldier. And if there is no religious emotion in one's make-up, a man may deliver good sermons,

The Safe Foundation but he will never be a success as a minister. A youth's natural gifts and inclinations toward knowledge, activities, and interests are, therefore, the safest foundations for any life-work.

On these only ought the studies to be built up which are to furnish the knowledge, to train the activities, and to deepen the interests.

XXXVII

GENERAL STUDIES.

We have said that our time demands a thorough preparation in knowledge, ability, and interest, for every important occupation, and that this must be gained by serious study and training. But this demand must not be misinterpreted, as though it emphasized only the specific studies which lead to efficiency in that particular line of work. The urgent demand that the go-as-you-please preparation should yield to thorough careful instruction and training is easily understood to mean that every boy and girl ought to turn as early as possible to a definite line of work, and ought to concentrate all his energies on such specialistic studies. But such an interpretation would be utterly unwise, and there are signs in our time that dangerous concessions are made to such a short-sighted policy.

Indeed, there are not a few who would like to see our schools turned more or less into places of vocational training. The boys and girls would then learn in the school all that is needed for them to enter, well-prepared, into some special bread-winning occupation, as soon as they leave the schoolrooms. Certainly this would overcome some of the present dangers of drifting unprepared into a chance life-work. Everybody would have learned

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something well under the supervision of teachers. But the disadvantages of such an innovation would be greater than its usefulness. However much the

Special vs. community demands well-trained specialists, the greatest need for every civilized society is *the solid, common basis of broad general education*. The **General Education** school loses its noblest mission if it does not bring to the state men and woman educated for the common work which binds them all together—the work of citizens, of fellow men who share their language and their ideas, their views of national life, and their interests in all that makes life worth living.

The safety and the future of the country depend upon this common stock of ideas and ideals. The members of the community must understand one

Common Stock of Ideas another; and that means not only that they should all know some English and be able to read and write it, but that they should have a far-reaching community of fundamental ideas and interests. However much our vocational work may separate us from each other, all that is most important in our life-work is and ought to be common to us all. The specialistic studies must under no circumstances encroach on the general studies which are fit for every one who wants to share the life of civilization. Every one ought to have some acquaintance with the history of his country, in order to understand our time and its needs; every one ought to know some geography, some natural

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science, and some mathematics, in order to understand our relation to the physical world that surrounds us; and every one ought to be acquainted with the masterpieces of literature.

We may go further. It would be not only a loss for the community if the children were to enter the special line of work without sufficient common

Learning to Do One's Duty education but a loss for the individual, who would be deprived of his most important privilege. All specialistic work must mean more or less an adjustment of studies to the special liking of the individual child. His interests and in-

clinations must decide upon the selection of studies. Now that is perfectly justified as soon as real vocational life begins; but at first the boy and girl have to learn to overcome the difficulties of work which is not to their liking. They should learn what is the greatest thing to learn in this world—to do one's duty even when it is unpleasant. There is no life-work that is not bringing its difficult, its tiresome, and its unpleasant tasks every hour. Only he who in his days of youth has acquired the power to do his duty faithfully and loyally can hope to master the tasks of vocational life. If school life from the beginning removes this discipline and the pupil is permitted to follow simply in the paths of least resistance, the greatest opportunity for the noblest learning is recklessly wasted.

Moreover, it is not only the need of the community as such that a general common education be acquired by every one, in order to give to the

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state and to society a solid community of interests among all fellow members, but above all it lies in the highest interest of the vocational life itself that it be based on the widest possible general education. A young pianist once came to Liszt, the most famous master of his day in musical instruction, and played to him a sonata of Beethoven on the piano and asked him to advise her what to do in order that she might perfect her playing. She expected that he would tell her what music she ought to play or how she ought to change the technique of her playing; but Liszt gave her only the answer: "Read Shakespeare." He knew too well that a perfect rendering of music is possible only for him who has a broad general education and who expresses in his playing a broad rich mind; and that it is therefore more important first to become an educated man, by reading the master-pieces of literature, than to train the ten fingers on the keys of the piano. This answer of Liszt holds true for all vocations, whether we play sonatas or teach in school or plead in court, whether we work in the office or in the machine-shop; whether we plow the field or cure the sick. To read Shakespeare, that is, to strive for a broad, rich education, remain the wisest advice for all. Our special vocational work we may learn early enough; the broad outlook upon the world, the general education that we need so much, will never be gained unless it is acquired at the beginning of our career. That must remain the fundamental task of the school, and

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everything in the school ought to have this general aim. If the child in the schoolroom learns drawing, it is not in order that he become a draftsman later, but in order that he develop a **The Broad** sense of form and of beauty and of **Ontlook** accuracy, which is needed in every line of work. If the child in the manual-training course of the school learns carpentry, it is not in order to become a carpenter, but to become a master of his muscle system.

This general education which the schools are to supply must necessarily be very different in breadth for different individuals. The large majority of

The College and Special Training the pupils cannot afford to carry it beyond the grammar-school; a smaller part may be fortunate enough to be able to add a high-school education; still smaller is the group of those who pass through college. But it is not by chance

that recent tendencies favor more and more the view that even the college ought not to be a strictly vocational school, but a place for general education, equally useful to the future banker and engineer, teacher and minister, architect and physician and lawyer, merchant and captain of industry. On every level of this general education that the schools have to furnish, the three factors which we acknowledge—instruction, training, and the awaking of interest—have to be reenforced by the work of the school.

It is not easy to say what form instruction ought to take in order to give the best possible general

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education. There is such a variety of claims that the various fields of human interest may make on an educated man. A glance at the catalogue of even a small town library indicates in how many directions the attention of the modern man and woman may be drawn; and practical life is reminding us all the time how many gaps there are in our general education.

What Constitutes General Education? Are we sufficiently informed about the great movements in technical and natural science? Do we understand clearly the social and political problems of our times? Have we learned enough of astronomy and geology and chemistry to understand nature? Are we sufficiently familiar with the history of civilization to grasp the meaning of the institutions and the remains of the past? Have we considered seriously the best literature and art of our times? Have we mastered foreign languages? Have we studied mathematics? Do we feel ourselves to be in touch with the philosophical and religious movements of the day? Are we familiar with the geography of our globe and with the anthropology of our race? Do we know the law of our country? Do we know sufficiently the functions of our organism, the laws of hygiene, and the new discoveries of medicine? Nowhere is there a limit.

Yet man's life is short, and no man's time would be long enough to complete an exhaustive study—or even a satisfactory study—of all fields of knowledge which are in themselves worth knowing.

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Selection is absolutely necessary, and a broad education is therefore certainly not a mere heaping up of the greatest possible number of studies. Everything depends upon a wise choice, a choice by which the various parts of man's knowledge are harmoniously interrelated in a serious education. Moreover, it is an acknowledged principle among the best educators that the greatest gain for individual development in the interest of general education is to be expected from a certain concentration on one field, and the more we concentrate in one direction, the more we must withdraw our energy from the widely scattered fields of possible study. The emphasis on this demand for concentration is a natural reaction of the educational world against the tendency to draw too many disconnected studies into the school curriculum. We feel seriously nowadays that a mere superficial acquaintance with a thousand things is not in itself a solid education. The smattering of knowledge which has been favored by fashionable finishing-schools may make a girl able to talk about a hundred things in a flippant style, but it does not furnish a harmonious development, and does not secure a safe relation between the personality and the world.

The desirable middle course would certainly be that the general education on every level have certain central points around which the various studies cluster, and that disconnected, haphazard studies in all kinds of interesting subjects be avoided. But

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on the other hand care is to be taken that as far as possible no important aspect of life and experience, men and the world, remain entirely foreign to the youth. Even those who cannot reach a high-school education must know something of the surrounding

Central Cluster Points world, of the historical past, of the social demands of our time, of the spirit of morality and of beauty, besides the tools of the daily life, speaking and reading, writing and arithmetic. The high-school studies, or private studies corresponding to a high-school course, offer wonderful opportunities to enlarge and enrich this general view of the world. Here the outlook must become wider. The historic past of mankind must transform itself into a more and more manifold picture that more fully secures an understanding of the tendencies and institutions of our generation. The laws of nature, the wonders of its structure observed through the telescope and the microscope, must become familiar. The thoughts of wisdom and the fancies of imagination which the great men of the human race have left to serious readers must bring their best gifts to the human heart and understanding. The moral and the religious, the social and the civic, demands of our community must be grasped in their logical connection.

Such an education is very different from merely being entertained by historical anecdotes and by curious facts of nature or by "current events" of our newspapers and magazines. It means persistent, earnest endeavor. The higher the level of

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this work, the more the personal, fundamental interest may come into the foreground. It is highly desirable that, even on the high level of the college, the work be subordinated to the ideal of general education; and yet it would be unwise College Studies not to encourage there a certain focusing of the work on one point in harmony with the deeper inclinations and permanent interests of the individual. A college student ought to cover a field sufficiently broad for the understanding of all the important aspects of life. Philosophy and mathematics, social science and history, natural and technical science, languages and literatures, fine arts and music, ought to engage his mind and develop him into a man of such broad culture as the country has a right to expect from its leaders. But he certainly ought to specialize in the one direction that will prepare his mind best for his later life-work. Yet his college career should not include the specialistic studies. He is not to study law in college, if he is to become a lawyer; nor theology, if he is to become a minister; nor medicine, if he wants to be a physician. But while the college study of all three types of men ought to be broad enough to include the essentials of the highest general education, it will be wise if the future physician concentrates his energies on naturalistic studies, the future lawyer on social studies, and the future minister on philosophical studies.

As far as the gathering of knowledge is concerned, the function of a general education is quite

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clear. We cannot too much encourage every effort which moves in that direction. The more years a boy or girl can spend in laying these broad foundations of general knowledge, the better will be the final outcome of vocational life. Even those who are entirely removed from the influence of a regular

Private Studies school and who privately devote themselves to home studies ought never to neglect this aspect of education. They are unwise if they rush at once to the specialistic studies. If they prepare themselves to become electrical engineers, they ought to read the masterpieces of literature and study history for the purpose of broadening their minds. If they want to become politicians or lawyers, they ought nevertheless to read about the new developments of nature study and technical science. The old saying of the Roman poet, "I am a human being and therefore nothing human is foreign to me," ought to be inscribed above the bookshelf of every home student as well as of the school student.

The two other aspects of the vocation—training and interest—are no less dependent upon general education than the aspect of knowledge. General education, of course, cannot furnish that specific training which is needed for a profession. The housewife does not learn cooking and the physician does not learn to make a surgical operation by his training in general studies. Yet both can prepare themselves through their general training for the specific occupations too. First of all, a number of abilities and activities are, as we have seen, im-

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portant for all of us, and must therefore be secured through the broad, common education. Whatever our specific occupation may be, we all need training in good speaking, in intelligent reading, in careful writing, in a certain technical mastery of style, in fair control of our movements, in polite and yet effective dealing with men, in quick calculation, and so on.

But more essential still is the service which general education can render by a formal training in mental powers. By formal training we mean the

Formal Training the acquirement of any special subject; training, for instance, the memory or the attention or the energy or the imagination or the reason. Those who do not believe in such formal training might say that the boy and girl ought to learn by heart only what is important for them to know; that the only purpose of learning is to keep that material in mind. Hence they would welcome the learning by school-children, perhaps, of the names of the cities and rivers and mountains, because it is desirable for them to know those geographical names when they come to read about foreign countries. On the other hand, those who believe in formal training might say that to learn those geographical names is in itself quite right, but the keeping in mind of those names is the least important purpose of that study. In their opinion, the much more important purpose is the training of the power of memory. Even if the children forget those geographical names, they have improved

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their ability to remember what they hear and see. This formal training of their memory is more essential for them than the mere increase of information. According to this view, therefore, there would be no objection even to the learning of entirely unimportant material, if it were learned in such a way as to improve the memory.

There was, for a time, a certain suspicion against this possibility of a formal training. There were some who claimed that we have either a good

Mental Powers And Formal Training or a bad memory, and that mere training cannot change it much; that we have either a rich or a poor imagination, a strong or a weak attention, and that we must take that as we have to take the color of our eyes and hair. But latterly more careful study of this problem has shown decidedly that these suspicions were unjustified. All these mental powers can really be strengthened and developed by formal training, and on the other hand they can be weakened and ruined by lack of training. Of course, this does not exclude the desirability of choosing important and valuable material as sub-

Attention jects of study, that is, of developing attention, memory, and imagination on contents which are themselves worth while; but it puts a new emphasis on the value of these general studies as means of training the mind. The more the mental functions have reached their greatest effectiveness through such formal training by general education, the better the individual is.

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prepared to undertake the task of specific, vocational studies. Above all, the power of attention—that is of energetic focusing of the mind on any given subject, is ultimately the power of doing one's duties in spite of distracting temptations; and there is no serious life-work which does not depend essentially upon this central energy.

But has general education also any importance for the third factor of vocational life—interest in the satisfaction of demands? On the surface it may

seem as if we have to say, No! But

Right Kinds of Interests the real situation is exactly the opposite. In no respect is general education more important than for the awaking and developing of the right kinds of interests.

We have seen that every vocation, and every valuable human occupation, can lead to a happy life and to the richest efficiency, provided the predominant motive is not the selfish desire for wealth and personal advantage, but is unselfish or ideal. The desire to serve the progress of mankind, to work for justice and morality, to realize beauty and truth, to spread education and health, to carry peace and happiness into every home, must be the leading motives, if our life-work is to be more than drudgery. We have recognized this fact clearly. But how can we hope to arouse such an idealistic and unselfish aim unless the mind is filled with those ideals which only the broadest possible education can furnish? Mere specialistic knowledge in itself has not the strength to carry man away from his purely selfish desires and ambitions; but contact

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with the great thinkers and poets of the world, with the finest literature and the best philosophy, with the laws of nature and society, and above all with the historical development of mankind, broaden the mind and make it enthusiastic for the deeper meaning of human values. Truly, the highest mission of

Need of Inspiration general education is to bring inspiration. If need be, the community might afford to have men in vocational life who lack the necessary knowledge or who are deficient in the necessary training, but no community can afford to have men who serve the vocational ends without inspiration. If the selfish demands alone are the motives for the work which men and women have to do, then the surface appearance may be smooth, but the inner core of the community life will be unwholesome. Mankind's work can be done in a sane and lasting way, only if an enthusiastic belief in the value of the work—yes, an idealistic inspiration—is the deepest and most permanent motive.

XXXVIII

THE SPECIAL STUDIES.

We cannot put our finger on a point where general education should cease and specialized education should begin. The effort to keep alive an interest in general education and to widen **Scrappy** constantly the outlook on life and work, **Literature** ought to continue throughout every man's lifetime. It is true that when the period of vocational life begins, the demands of the specialistic occupation are absorbing, and little time remains for that leisurely wandering through outlying fields of knowledge. Yet no one is so overcrowded with work that he may not find some evening hour, or some holiday morning, for an earnest book outside his own chosen field—a book that may carry him away from his routine work and keep him in touch with the manifold interests of the world. It is a doubtful and inadequate substitute for general culture to fall into the prevalent habit of relying entirely on newspapers and magazines. It is perfectly true that our modern magazines often offer excellent material that may well attract the attention even of the best educated. Yet the small doses which are offered in those short sketchy articles easily spoil the habit of concentrated attention. Instead of focusing the

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mind on one group of problems, we approach a dozen essays in an evening's reading, and rush from one to another without gaining any lasting value for our inner development. Those who read not only for amusement and entertainment, not only as a diversion from the weariness of their routine work, but who really wish to cultivate their minds and to continue their broad education, ought always to prefer the coherent book on a serious topic.

When we come to specialistic studies, however, mere reading no longer suffices. The emphasis does not lie on study in a schoolroom. It is true that

Special Institu- whoever can find the time, means, and **tions** inclination to gain his specialistic education in an academic institution will find it in many respects profitable to do so. The professional schools of the universities, the technological institutes, the agricultural colleges and the colleges for teachers, the normal schools, the commercial schools and domestic schools, the farmers' schools and trade schools, offer abundant opportunities for all who can devote years of their life to such concentrated effort. It is a pity that too many approach even such work in a narrow, undignified spirit. They attend these institutes not for the sake of knowledge and training and inspiration, but merely to "get a degree" or a diploma—to have something in black and white. Hence the desire to pass an examination too often becomes the final aim, and this reacts in a disastrous way on the whole course of study. The mechanical counting of courses and the patching

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together of curriculums in order to become a candidate for a degree give a trivial view to the educational life.

Whoever enters such institutes ought to have only the desire to leave them with a fuller knowledge, a broader training, and a deeper motive for an efficient life-work. There can be no doubt

Advan- that the institutional work offers for
tages of this end great opportunities. The intimate contact of the pupil with men
College who are leaders in their professions,
Life the stimulating coöperation with fellow students, the undisturbed devotion to the work for a period of years free from every other care, are important advantages which no one ought to underestimate. But if it is understood that these alone are the real advantages, compared with which the diplomas and degrees count for extremely little, it is evident that not a few of the chief elements of these opportunities can be hoped for no less from home study, if it is conducted under the wise guidance and earnest supervision.

Indeed, it has even been pointed out that not a few of these advantages in institutional instruction are coupled with disadvantages and dangers which can be avoided by private work, and it is not by chance that among the most serious students the movement toward private study under guidance and supervision has come to unexpected favor in recent years. Of course it has its limits. No one can possibly become a surgeon by home study alone. But

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the increase of opportunities for varying occupations, especially for the purpose of raising the level of a man's chosen work, is wonderful; and young America has found it out.

But study must be study! If the books which the library or the correspondence school or the advisors furnish are read simply in the way in which the

Efficient Reading Sunday papers are read, no gain can be expected. Those who merely glance over the pages of a serious book in order to pick out what is interesting and entertaining, will find that their minds work like a sieve, unable to hold what is poured in. The young student cannot acquire too early the habit of a kind of reading which results in the greatest possible efficiency. One of the chief conditions for such results is never to read without pen or pencil in hand—not in order to disfigure the book by marks and words, but to write down in a notebook the essentials of the reading-matter. But these essentials ought not to be simply names and figures or single words, but phrases and sentences that really reproduce the connection of thought in a condensed way. Such notes ought to secure a mastery of the material studied by bringing out in sharp relief the relations of the different parts. Each chapter should stand in the notes in a clean-cut brief which groups the central arguments in their logical order. This will most safely insure healthy habits of private study and will deepen every interest.

Nothing—really nothing—ought to be passed without being clearly understood. Quantity can-

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not count in private study; only quality. A few thoughts seriously grasped and followed out in their consequences and seen in all their relations are far more valuable than thousands of pages of undigested material quickly and carelessly taken in. The choice of the material is therefore of the greatest importance, and no study ought to be taken up unless its foundations have been carefully laid.

The supervision of reading and study is in no respect more essential than in the care that the material be approached in a wise, well-planned order.

Haphazard studies are not only useless
Orderly Study but often destructive to sound progress.
But next to the guidance which in every subject leads from the elements to the most complex knowledge, supervision of the results is highly important. The mere effort of the student is in itself no guarantee that the work is carefully done; the mere feeling of clearness does not make it certain that the material is really understood; the mere interest in the study does not secure true mastery. An expert alone can decide this and at the same time can give advice and suggestions how to improve the work.

The student who translates from or into a foreign language, or who writes compositions or solves mathematical or scientific problems, cannot derive

the greatest benefit unless he is constantly able to appeal to an authority
Need of Guidance for a decision whether the work has been done correctly and satisfactorily.

Indeed, it would be decidedly beneficial if the whole

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study, as far as it is possible, were brought into connection with real problems and definite tasks which the student is to solve. Every book he studies ought to become in a way material for a kind of examination which would make it perfectly clear whether he has grasped the essentials and whether he has absorbed the meaning sufficiently to proceed to the next group of problems. Industry alone can never replace such supervision, inasmuch as there is no probability that the mere repetition of the work will improve it. On the contrary, a careful study of the methods of training has made it entirely clear that mere repetition, as it might be carried out by pure industry, is in itself not a condition of real advance. It is *successful* repetition alone that helps, while every unsuccessful repetition hinders. If we simply go on and on, never quite sure whether we are making mistakes or not, we may even lose more than we gain. Guidance and supervision, therefore, cannot be dispensed with, and the results will hardly be inferior to those of institutional education, if this guidance and supervision on the part of the teacher are coupled with the good will of the student, with the privilege of undisturbed work in the quiet of his home, and with the opportunity of adjusting his work to his own personal needs. This adjustment means not only that he is master of his time and can take up his study at any day or hour he will, independent of regular appointed lecture hours, but also that he is free both from the retarding influence of weaker fellow students and from the necessity of hastening over the course with those who

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find the work easier than he does himself. Certain disadvantages of the school work can thus be avoided, while certain clear advantages of private work can be gained.

There is one danger more threatening, on the whole, to private than to institutional work; and a serious warning is in order. Private students are

Avoidance of Over-work more inclined to overwork and to take insufficient care of their nervous systems. The private student is often inclined to steal the needed hours of rest from a busy life crowded with tiring routine work, and the excitement of his fascinating studies is all too likely to prevent his becoming aware of the fatigue that creeps over him. Too often he keeps himself artificially awake for late study hours, as his ambitions goad his weary brain to an activity beyond hygienic limits. Then the time comes when his nerves take their revenge, and one of the most discouraging and depressing reactions assumes the form of a general mental fatigue, coupled with a constant feeling of inability for mental work. The hygiene of intellectual labor is to no one of more importance than to the private student who, by reason of his ambition and energy, easily surpasses the institutional student without being his equal as to free time and strength, since he has to divide his energies. The most important suggestion for him ought to be based on the physiological fact that the only recreation for a fatigued nervous system is complete rest and sleep, together with good nourishment and fresh air. The value of

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physical exercise is rather limited in his case. The brain centers which are tired by intellectual effort, are only tapped once more for the motor effort of physical work. Every sport, as a mere recreation, is decidedly unfavorable. Needless to say the same holds true of much smoking and drinking and of all forms of dissipation and coarse pleasures.

There are few intellectual and occupational goals which may not be accessible to the intelligent, persistent, and industrious home student, but he needs

Conclu- more than others an ideal adjustment
sion of his whole life with serious regard for
the hygiene of labor and for the culti-
vation of his finer personality. And at
no stage ought he forget that the life-work toward
which he is aiming cannot be carried on by mere
Knowledge or by mere Ability or by mere Interests,
but that all these three groups have to be combined,
whether his task be humble or high, whether it
serve the home or the nation.

THE END









